

THE NEGATIVE EFFECT OF EXTERNAL SUPPORT DURING INSPECTION AND
SURVEY INSPECTIONS ON BOARD U.S. NAVY, MILITARY SEALIFT
COMMAND AND U.S. COAST GUARD VESSELS

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Joint Planner

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ABSTRACT

THE NEGATIVE EFFECT OF EXTERNAL SUPPORT, DURING INSPECTION AND SURVEY INSPECTIONS, ON BOARD U.S. NAVY, MILITARY SEALIFT COMMAND AND U.S. COAST GUARD VESSELS, by LCDR Marc E. Davis, 91.

On board U.S. Navy, Military Sealift Command and the U.S. Coast Guard vessels, Inspection and Survey routinely conduct inspections. The successful completion of these Inspection and Survey (INSURV) inspections has always been considered a major hurdle. The primary mission of the INSURV inspection is to “assess the material condition of vessels and fitness for further service.” INSURV reports have also been used to determine crew effectiveness, ongoing maintenance standards and a crew’s ability for self-assessment. As the percentage of failures has increased within the U.S. Navy, the amount of external support provided during the preparation for the INSURV inspection has increased. The external support provided is in the form of extra funds and manpower. Since the inspections are required for U.S. Navy, Military Sealift Command, and U.S. Coast Guard vessels, it begs the question whether this increase in external support is consistent throughout the three services. The external support, during the preparation process for the INSURV inspections onboard U.S. Navy, Military Sealift Command and U.S. Coast Guard vessels negatively affects the original purpose of the inspection. The external support actually hides the problems these services face with diminishing funding and manpower.

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ACRONYMS

ABS	American Bureau of Shipping
ASW	Anti Submarine Warfare
CASREP	Casualty Report
CG	Cruiser
CGRON	Cruiser Class Squadron
CLASSRON	Class Squadron
CNO	Chief of Naval Operations
Coast Guard	United States Coast Guard
COMSC	Commander Military Sealift Command
CRUDES	Cruiser/Destroyer/Frigate
DDG	Destroyer
DDGRON	Destroyer Class Squadron
DFS	Departure From Specifications
FFG	Frigate
INSURV	Inspection and Survey
INSURVINST	Board of Inspection and Survey Instruction
ISIC	Immediate Superior In Charge
LHA	Amphibious Landing Assault ship
LHD	Amphibious Landing Dock ship
LPD	Dock landing Ship
MOU	Memorandum of Understanding
MSC	Military Sealift Command
MSFSC	Military Sealift Fleet Support Command

NAVOSH	Naval Occupational Safety and Health
Navy	United States Navy
OPNAV	Chief of Naval Operations Office
PCU	Pre-Commissioned Unit
PRESINSURV	President Inspection and Survey
SMART	Ship Material Assessment and Readiness Testing
SMT	Shipboard Management Team
SURFLANT	Atlantic Surface Command
SURFOR	Surface Forces Command
TYCOM	Type Commander
USNI	United States Naval Institute

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CHAPTER 1

INTRODUCTION

Background

On U.S. Navy, Military Sealift Command and the U.S. Coast Guard vessels, the Inspection and Survey routinely conducts inspections. Completing these Inspection and Survey (INSURV) visits has always been considered a major hurdle. As the percentage of failures has increased within the U.S. Navy, the amount of external support provided during the preparation for the INSURV inspection has increased. Since the inspections are required for U.S. Navy, Military Sealift Command, and U.S. Coast Guard vessels, it begs the question whether this increase in external support is consistent throughout the three services. If consistent, does the external support during the preparation process for the INSURV inspections onboard U.S. Navy, Military Sealift Command and U.S. Coast Guard vessels effect the original purpose of the inspection?

The historical purpose of the Inspection and Survey (INSURV) board for surface ships has been to report the current material condition of military ships. The Board of Inspection and Survey is the U.S. Navy command responsible for conducting routine material condition inspections on every surface ship within the U.S. Navy (Navy) and Military Sealift Command (MSC). In addition, they are responsible for conducting pre-commissioning inspections onboard newly built U.S. Coast Guard (Coast Guard) vessels. “The Board of Inspection and Survey was established by Congress to ensure that the ships of the United States Navy are properly equipped for prompt, reliable, sustained mission readiness at sea.”¹

This board, established in 1868 under Admiral David Glasgow Farragut, is commanded by the President, Board of Inspection and Survey. One of the many responsibilities of the president is to train and field teams to conduct the INSURV inspections. These inspections are conducted every five years by a team assigned by the board. Title 10 Section 7304 of the U.S. Code originally specified that this inspection be conducted not to exceed every three years, but this periodicity was extended by the Chief of Naval Operations in 1998 to reduce the inter-deployment training cycle requirements.² This change also increased the time available for more focused training for operational missions.

The primary mission of the INSURV inspection is to “assess the material condition of vessels and fitness for further service.”³ This mission is a Title 10 directive that encompasses all naval vessels.⁴ The Board of Inspection and Survey conducts the INSURV inspections on board Navy vessels, but the President, Board of Inspection and Survey delegated this responsibility for MSC vessels to the MSC’s Ship Material Assessment and Readiness Testing (SMART) program.⁵ The SMART inspections are INSURV inspections with a different name. The processes and procedures are both approved by the President of INSURV. The SMART inspections tend to be performed more often by civilian than military officers, while the INSURVs are predominately military personnel. The SMART inspection is still considered an INSURV and for the purposes of this study, INSURV will refer to both inspections across Navy and MSC naval ships.

Both inspections review the material condition of the ship by conducting trials and inspections in various areas. The Navy’s INSURV assesses performance in nineteen

areas. Based on the assessments in these areas, an overall inspection grade is assigned. These areas are evaluated over a five day period. The SMART inspection is similar except that it uses thirteen areas as a base for its findings. For both inspections the first two days are pier-side with most systems secured, while the third and fourth days are conducted while the ship is at sea (underway). The final day for both inspections is used to complete any problem areas and to conduct an out-brief with the senior leadership. This out-brief provides a generic overview of the results, which the ship's executive leadership uses to identify major problem areas. Appendix A contains the details of the INSURV schedule. Appendix B contains the typical SMART inspection schedule.

The key to success for these inspections is the preparation and completion of the pre-inspection checklists. INSURV provides these checklists to assist ships in self-assessing all major areas. These checklists are so extensive that they could not be included in this study. They can be found on the INSURV website. Self-assessment is an important component of a unit's overall score. If a ship adequately identifies all discrepancies, then it is viewed as having successfully completed the inspection.

During these inspections the goal is to identify discrepancies with a ship's material condition. This material condition is compared to the ship's maintenance databases to determine whether current procedures and processes for maintenance are sufficient. The official results are submitted via message to the vessel's commander, the immediate superior in charge (ISIC) and key maintenance leadership. ISICs are the immediate superior to the ship's commanding officer and as such are responsible to ensure ships complete all required administrative requirements. The final report from the INSURV team reports the ship's status, which is critical in determining whether

resources need to be allocated to resolve issues or to correct broad discrepancies. This final report is sent to various commanders identifying common inspection problems. The intent of these reports is to identify and educate similar ships of common problems, to improve future inspection performance.

Commanders frequently prioritize their maintenance funds and manpower requests based on these final reports; thus the original value of INSURV was that it identified maintenance, equipment and design problems that shipboard experts overlooked or were unable to identify. As a result of this consolidated expertise within the inspection teams, shipboard personnel learned a great deal about their equipment upon completion of the inspection.

Problem

In recent years, INSURV reports have been used to determine crew effectiveness, ongoing maintenance standards and a crew's ability for self-assessment. Results are seen as a direct correlation to the management ability of the ship's executive leadership. The result of a failed INSURV is typically followed by the relief of various key officers. A failed INSURV is seen as an unsuccessful inspection in key areas like propulsion, damage control, medical, environmental protection, habitability, and naval occupational safety and health. These terms are explained in chapter 4. It is used as a metric to assess the performance of these key officers, especially the chief engineer, the damage control assistant and the commanding officer. This norm influenced the priority assigned to the INSURV, from the supervisors at the individual ship level to the ISIC. INSURV preparation checklists are tracked closely by commanding officers and ISICs, because unsatisfactory results could end their careers. If ships begin to fail, the ship and

supporting commands determine the perceived problem and execute plans to counter it. These plans include the augmentation of personnel and funds to fix material problems, referred to as external support throughout this study.

Another contributing factor to the change in the role of the INSURV relates to Navy end strength. The Optimal Manning initiative reduced the force significantly in recent years. The Optimal Manning initiative started in 2003 used a manpower analysis and modern technology to reduce the required personnel needed to operate and maintain a ship. This initiative intended to reduce the budget of the surface fleet by eliminating manpower redundancies and by embracing modern technology. By using this modern technology as designed, the intent was to minimize the maintenance and operator requirements. This limitation would help minimize personnel requirements and make ships more efficient.⁶

The Navy cut 60,000 personnel from 2003 to 2008 bringing the current strength to approximately 330,000 personnel.⁷ Admiral John Harvey who headed the Fleet Forces Command in September 2009 stated, “We’ve hit where we think our floor is. Now, how do we best live with this number? I know we have not got it right in all the particulars.”⁸ To complicate the problem, personnel are also pulled to support individual augmentee billets in ground forces in Iraq and Afghanistan.⁹ The critical problem with this reduced manning was that it limited the amount of repair and maintenance work shipboard personnel could accomplish. If work cannot be accomplished then how are repairs completed? Only by using maintenance funds. This idea though initially effective could not be maintained, since funds were just not available. This year the senior leadership identified the problem and informed the “Navy leadership that they must spend more

money now on maintenance if they are going to meet their goal of increasing the size of the fleet.”¹⁰

Initially, the development of the Class Squadron (CLASSRON) was the next step to identifying common problems across similar classes of U.S. Navy ships. As the CLASSRON’s role became more focused and defined, the squadron began the arduous duty of tracking INSURV results. While tracking these results, it was given greater responsibility to assist with the successful completion of the INSURVs onboard all NAVY ships within the class. To ensure this successful completion, CLASSRONs were provided extra funding to assist ships with material repairs. As the CLASSRONs monitored the preparations for INSURV, they provided expert personnel to assist with repairs and self-assessments.

Research Questions

The mission of the Board of Inspection and Survey is to ensure naval vessels “are properly equipped for prompt, reliable, sustained mission readiness at sea,” and with external support provided. Does the external support, during the preparation process for the Inspection and Survey (INSURV) inspections on board Navy, MSC and Coast Guard vessels, affect the original purpose of the inspection?¹¹ To support this primary research question the following secondary research questions were critical. What is the purpose of INSURV inspections onboard Navy, MSC and Coast Guard vessels? Has this purpose changed? What preparation processes are used for INSURV inspections onboard Navy, MSC, and Coast Guard vessels? What official and unofficial processes are used? How much external support is used during the INSURV preparation process onboard Navy, MSC, and Coast Guard vessels? What external funding and manpower support was

provided? What value has the INSURV inspection historically provided to the Navy, MSC, and Coast Guard? Has this value changed? And finally how important is the external support to the INSURV results?

To aid in answering these critical questions, the history of the INSURV must be reviewed to determine the original purpose of the inspection. This purpose will be the baseline of comparison when analyzing and determining the effect of the external support. It is also important to examine the current preparation process for INSURV to determine what official and unofficial external support is utilized. Answering how much external support is provided for the preparation of INSURV, will provide a data point of comparison with the results of the inspections to determine how important these external influences are to the INSURV results. By determining the historical value of the INSURV inspection to the services, we can draw conclusions regarding whether this value has changed based on the external support.

Definitions

The following terms must be defined to understand this study. Military Sealift Command (MSC) is the command responsible for the operation of civilian operated ships that support the U.S. military forces. “MSC's mission is to support our nation by delivering supplies and conducting specialized missions across the world's oceans.”¹² It contains approximately 110 non-combatant vessels which fall into four mission areas: naval fleet auxiliary support, special mission, pre-positioning and sealift.¹³

The naval fleet auxiliary support program has 41 ships and is responsible for support to the Navy warships throughout the oceans.¹⁴ The special mission program has 25 ships and is responsible for conducting oceanographic and hydrographic surveys along

with a long list of other specialized U.S. military and government missions.¹⁵ The pre-positioning mission program is supported by 31 ships and is responsible for maintaining and moving combat equipment throughout the world.¹⁶ These ships support U.S. Army, Air Force, Marines and Navy forces. The final mission area, the sealift program, is responsible for providing “high quality, efficient and cost effective ocean transportation for the Department of Defense and other federal agencies during peacetime and war.”¹⁷ USNS is the four letter designation given to United States naval ships. They are civilian operated Military Sealift Command ships that closely support U.S. Naval forces.

The acronym CRUDES refers to cruisers, destroyers and frigates, which are types of naval surface combatants. CRUDES refer to ships that are designed to conduct offensive and defensive operations against aircraft, submarines, other ships and their associated weapons. They carry no land forces, but carry maritime weapons and are predominately high speed. CG is the two letter designation for a cruiser. A cruiser is the largest surface combatant currently in the U.S. Navy’s inventory. The TICONDEROGA class cruiser is one of the oldest classes of surface combatants. The oldest ship of the class has been in service for 23 years and the newest for 15 years.¹⁸ Cruisers were designed for 364 crew members to operate and maintain the equipment.¹⁹

Class Squadrons, mentioned earlier, are shore squadron commands separated by class of ships. Their tasking is to align “manning, training, equipping and maintaining processes” by class.²⁰ There are eight CLASSRONs; three in Norfolk, Virginia; three in San Diego, California; one in Mayport, Florida and one in Ingleside, Texas. Only one CLASSRON will be discussed in this study, the CG CLASSRON located in San Diego.

Limitations

This study concentrated only on U.S. surface ships within the Navy, MSC and Coast Guard. Within the Navy, research of the cruiser class was used as an example and as a representative sample, but to limit the amount of data, only the Navy ships that completed the INSURV inspection from January 2007 to December 2009 were analyzed. The intent of this limitation was to use data that was current. In order to make this study relevant, data was based on current factors, such as current policies, funding and maintenance procedures. Using out-dated data would increase the variables and cause the final conclusions and recommendations to have greater chance of error. The cruiser class was selected because the CLASSRON associated with that class does not include recently constructed classes. By selecting an older ship class, INSURV scores caused by discrepancies associated with new and untested equipment were minimized. The intent was to reduce the study variables to simplify and clarify the analysis.

The MSC research was also limited to information on MSC ships that completed INSURV from January 2007 to December 2009. The MSC data was limited for the same reasons the Navy data was limited. To maintain consistency throughout the study it was necessary to limit the data to the same time frame. The similar time constraint will ensure the data between the two services can be compared by controlling the external variables. The information on the INSURV on board Coast Guard vessels was also limited to inspections between January 2007 and December 2009. The data was limited to these two years for the same reason mentioned above. Maintaining consistency allowed the information to be compared without compromising the validity of this study.

This study did not analyze the congressional review method, or any organization above the President of the Board of Inspection and Survey. Entire thesis have been written regarding the processes used to report the inspection results, but this avenue of research serves no valid purpose for this study. The intent of the study was to review current information to determine conclusions and recommendations. Any data collected prior to January 2007 was not current, and called into question conclusions and recommendations that were drawn from this study. Maintaining a consistent time period simplified the comparison and increased the validity of the comparisons. Information or other examples prior to this cut-off date were used for historical understanding.

This study's analysis and conclusions touched upon the Navy's reduced manpower Optimal Manning initiative. The intent of this study was not to discuss this initiative in detail, but to address the manpower initiative as a factor and its supporting documents for the analysis. With the planned "6.5 percent cut in the force from 2003 to 2008" the Navy's Optimal Manning initiative planned to streamline the force.²¹ "Ships will be more high-tech, and ships' crews smaller as a result. Sailors aboard those ships will be more technologically sophisticated and versatile in their jobs."²² This initiative started in 2004 and resulted in less manpower onboard Navy ships.

Similarly, the reduction of operational funding for surface ships was mentioned only as it applied to the INSURV preparations. This study did not discuss this fact further, nor did it draw any conclusions regarding the appropriateness of military funding. Global current events were not mentioned throughout this study, though they affected the manning and funding issues. Finally, this study did not discuss, in detail, the current decision regarding the classification of INSURV reports, despite the popularity of the

debate. This study mentioned the decision as it affected the manner in which data could be presented.

Assumptions

Various assumptions are critical to the validity of this study. It must be assumed that all the inspections were conducted in accordance with the INSURV guidance and regulations. The procedures and guidance for these inspections are very rigid and formal. It is therefore a safe assumption that all these inspections were conducted correctly. This assumption is important in the comparison of the data. Inspections conducted incorrectly would cause invalid data, comparisons and ultimately conclusions and recommendations.

In addition, it must be assumed that the data used for analysis was as bias-free as possible and based on thorough checklists used by the inspectors. Because the training process for the inspectors is formal and in-depth, it is a valid assumption that the results accurately portray the actual material condition. The incorrect identification of the material condition would invalidate the scores and cause the data comparison to be flawed. Inspections are assumed to be standard across the ship classes and the services. The checklists designed by the board are standard with the exception of systems that are not similar. For the purpose of this study we will assume the inspections were standard. This assumption allowed for the crucial data comparison which provided key quantitative data for the study.

Another key assumption critical to the study is that surface ship's leadership are trying to successfully pass the inspection and are not purposefully trying to fail. If the leadership on board these ships were trying to fail, then all the analysis and conclusions would be invalid. This is an important assumption because the analysis and conclusions

of this study are based on the notion that all vessels' leadership was intent on passing the inspection.

¹Department of the Navy, About Us, "Mission," <http://www.public.navy.mil/usff/insurv/Pages/default.aspx> (accessed 25 September 2009).

²Chief of Naval Operations, "NAVOP 009/98," 252203ZSEP98, CNO, Washington, DC, 25 September 1998.

³Commander Military Sealift Command, COMSC INSTRUCTION 4730.4, *Ship Material Assessment and Readiness testing (SMART) Inspections on MSC Vessels*, (Washington, DC, 14 August 2009), 1.

⁴Title 10 US Code, *Armed Forces*, Sec. 7304, "Examination of Vessels: Striking of Vessels from Naval Register," January 2004, <http://vlex.com/vid/examination-striking-vessel-register-19219551> (accessed 14 December 2009).

⁵Board of Inspection and Survey, MSC/PRESINSURV MOU of 31 October 2001, *Memorandum of Understanding Between PRESINSURV and COMSC* (Virginia Beach, VA, 31 October 2001).

⁶Margaret Roth, "Navy's "New World" of Optimal Manning," *Navy League: Sea Power*, December 2004, http://www.military.com/New_Content/0,13190,NL_Optimal_121304,00.html (accessed 18 March 2010).

⁷Philip Ewing, "Lean Manning saps Morale, Puts Sailor at Risk," *Navy Times*, 21 October 2009, http://www.navytimes.com/news/2009/10/navy_leanmanning_101909w/ (accessed 4 April 2010).

⁸*Ibid.*

⁹*Ibid.*

¹⁰Otto Kreisher, "Admiral: Fleet Size Hinges On Larger Maintenance Budget," *National Journal's Congress Daily AM*, 13 January 2010, <http://www.nationaljournal.com/congressdaily/> (accessed 20 January 2010), 1.

¹¹Commander Military Sealift Command, COMSC INSTRUCTION 4730.4, *Ship Material Assessment and Readiness Testing (SMART) Inspections on MSC Vessels*, (Washington, DC, 14 August 2009), 2.

¹²Department of the Navy, "Mission," <http://www.msc.navy.mil> (accessed 5 December 2009).

¹³*Ibid.*

¹⁴Dale Eisman, "Lawmakers Seek Openess After Navy Closes Reports," *McClatchy-Tribune News*, 4 May 2009, <http://proquest.umi.com/pqdweb?did=1697102351&sid=2&Fmt=3&clientId=5094&RQT=309&VName=PQD> (accessed 25 November 2009).

¹⁵Department of the Navy, Mission, "Special Mission Program," <http://www.msc.navy.mil/pm2> (accessed 6 December 2009).

¹⁶Department of the Navy, Mission, "Prepositioning," <http://www.msc.navy.mil/pm3> (accessed 6 December 2009).

¹⁷Department of the Navy, Mission, "Sealift Program," <http://www.msc.navy.mil/pm5> (accessed 6 December 2009).

¹⁸Norman Polmar, *The Naval Institute Guide to the Ships and Aircraft of the U.S. Fleet*, 16th ed. (Annapolis, MD: Naval Institute Press, 1997).

¹⁹Department of the Navy, "United States Navy – Fact File: Cruisers-CG," http://www.navy.mil/navydata/fact_display.asp?cid=4200&tid=800&ct=4 (accessed 4 December 2009).

²⁰Tom Kreidel, Chief Mass Communication Specialist, "CLASSRON Prepares to Support the Fleet," 10 October 2006, http://www.news.navy.mil/search/display.asp?story_id=25963 (accessed 27 September 2009).

²¹Margaret Roth, "Navy's "New World" of Optimal Manning," *Navy League: Sea Power*, December 2004, http://www.military.com/NewContent/0,13190,NL_Optimal_121304,00.html (accessed 18 March 2010), 1.

²²*Ibid.*

CHAPTER 2

LITERATURE REVIEW

Comprehensive literature on this specific topic was limited, which required the use of literature addressing the specific parts of the topic. To determine whether the external support affected the original purpose of the INSURV inspection, a review of the preparation process by the Navy, MSC and Coast Guard; a review of the INSURV inspection process; and the review and collection of comparison data, was necessary.

Inspection Process Literature

The Board of INSURV is the key source for a qualitative review of the INSURV process. The Board of INSURV is the foremost expert on this inspection, its purpose and its uses. The information their website provided was extensive. An understanding of their mission was obtained from their mission page on the command's website.¹ The information from the website was also useful for historical understanding of the process, specifically the information found on the history page.²

One important part of this historical understanding was Title 10 of the U.S. Code, Section 7304, which directed the armed forces to “designate a board of naval officers to examine naval vessels and to report to the Secretary of the Navy which vessels should be stricken.”³ This section also directs that each vessel be inspected every three years.⁴

The Office of the Chief of Naval Operations (OPNAV) also released documents that were reviewed to completely understand INSURV. The OPNAV INSTRUCTION 4730.5P is the *Trials and Material Inspections (MI) of Ships Conducted by the Board of Inspection and Survey*. This instruction released on 7 August 2006 by the Office of the

Chief of Naval Operations, is the document that sets the policies associated with material inspections, which includes the INSURV inspection. This instruction explains in detail the purpose and process of the INSURV inspection for all services, Navy, MSC, and Coast Guard. This instruction contained explicit instructions and requirements that must be followed during all INSURV inspections.

The final instruction that was reviewed is an INSURV Instruction released by the President, Board of Inspection and Survey on 15 April 2005. INSURVINST 4730.1F is the *Trials and Inspections on Surface Ships* instruction that informs all surface ships of the process and procedures of the inspections.⁵ This document contains a thorough explanation of the purpose of the inspection and the expectations. In addition it includes appendices which contain the critical procedures and tasks that must be completed to successfully complete an INSURV inspection. This lengthy document is intended to be the single source document regarding the INSURV inspection.

To understand the MSC process, it was necessary to review the COMSC INSTRUCTION 4730.4, which was written by the Commanding Officer of the MSC (COMSC). The COMSC INSTRUCTION 4730.4, which is the *Ship Material Assessment and Readiness Testing (SMART) Inspections on MSC Vessels*, was released by the COMSC on 14 August 2009. This instruction described the SMART inspection process and procedures that all MSC vessels use.⁶

The MSC website provided amplifying information regarding the overall mission of the MSC and what ships it has in its inventory.⁷ The email conversations with the MSC's Ship Inspection Branch were extremely useful in understanding the MSC SMART process and clarification regarding similarities and differences between the

Navy and MSC process.⁸ The lack of journal articles discussing successes and failures in detail limited the amount of information regarding the SMART information.

The Coast Guard uses the same instructions and inspection teams that the U.S. Navy inspection does, so the process is the same. It was important to understand that the governing documents regarding the Navy INSURV inspection refer to the Coast Guard INSURV inspection as well. Though the Coast Guard uses the INSURV inspection for different reasons, the purpose and process remains the same under the INSURV governing instruction. The inability to establish a knowledgeable point of contact for the Coast Guard INSURV inspections severely limited the information and data on this topic.

Once the INSURV process was fully understood, it was important to determine how each service prepares for the inspection and whether external support was provided.

Preparation Process Literature

To review the preparation process used by the Navy, MSC, and Coast Guard it was important to conduct a qualitative review of multiple sources to identify any differences between the three services.

For the U.S. Navy it was necessary to review the procedures and recommendations provided by the INSURV board. The preparation process was covered in detail within INSURVINST 4730.1F discussed earlier. To further understand the U.S. Navy preparation process, lessons learned guidance from INSURV was examined to determine recommendations. This guidance was very specific about what was required of the ships and their leadership, but it only referred to systems and areas of concern on board ships. It did not recommend or discuss the external support in any way. An article written by the INSURV Board was found in the *Sea and Shore*.⁹ This article, “How To

Prepare For Insurv,” covered seven routine tasks that ships must continuously perform well to succeed.

To finalize this analysis it was necessary to determine how ships in the last two years prepared for the inspection. This was accomplished using internet articles and blogs published about individual ship inspections. The primary lesson learned resource that became the focal point of this study was found on the USNI Blog webpage.¹⁰ This blog “System Coaches and Inflexible Playbooks” provided a copy of the unpublicized lesson learned message sent from the Commanding Officer of a CG. This article provided specific data regarding external support utilized during the INSURV preparation process. Another article regarding the same inspection was found in the *Navy Times*.¹¹ This article “Cruiser Study: InSurv prep means extensive outside help” provided supporting information, but did not have the in depth data regarding external support. A *Navy Times* article “InSurv Text” found online provided the written INSURV report of another CG which failed the inspection.¹²

Other articles online that were necessary to this study provided supporting information discussing failures of ships during inspections. The *Defense News* article “U.S. Navy Finds Glaring Flaws in 2 Surface Ships,” found online, provided more supporting data regarding the extent of the problem. This article specifically describes the view of the senior navy leadership, which feels that INSURV failures are leadership problems and prove personnel are lazy and lack the desire to succeed.¹³ Another source that provided supporting information was the Commander Naval Surface Forces Fleet Review Panel document. This 2009 document, authored by Naval Surface Forces staff, was titled “Review of INSURV Failures, 2003-2009” and covered all the material

condition failures of all ships that failed during this time.¹⁴ The final source was an issue paper written by P. Smith on the staff of Commander Surface Forces Atlantic titled PB11 Issue Paper. This paper provided an excellent overview of the failure trends from 2003 through 2009.¹⁵ This paper is included as Appendix C.

Articles discussing the manning reductions were critical to this study. Newsbank Inc had an online article “Sailor Shortage” published in *Navy Times*, which discussed the reduced manning issues and how it affects the INSURV inspections. It also discussed the effects of reduced manning in the fleet.¹⁶ The ProQuest article “How Many Sailors Can Ships Afford?” was published in *Proceedings*.¹⁷ It discussed the manpower reductions, specifically the reason behind the decisions and the reason it is ineffective. The Commander, Naval Surface Forces, was given a brief on 31 March 2010 titled “SWE Surface Board Face to Face,” which discussed some of the critical manning issues within the fleet.¹⁸ The online article “Only Highly Trained Need Apply in Navy’s ‘New World’ of Optimal Manning” was published in *Sea Power* and found on the Military.com website. This article discussed the Optimal Manning initiative in detail explaining the rationale and the expected effects from this initiative.¹⁹

The article “Admiral: Fleet Size Hinges On Larger Maintenance Budget” was found in the *National Journal’s Congress Daily AM*.²⁰ This article discussed the need for increased funding to support maintenance of surface ships within the Navy.

Articles were also found regarding the classification of the INSURV reports. These articles provided background information regarding this issue, but were used only to understand the issue. The *Navy Times* article “Keep InSurvs Public” was found online and contained details regarding several ships that failed their INSURV inspections.²¹

Another article “Lawmakers Seek Openness After Navy Closes Reports” was found in the *McClatchy-Tribune News*.²² This article contained similar information as the *Navy Times* article, but also included comments from Congress. *Defense News* also had another article titled “U.S. Rep Forbes: Put Transparency in Budget Process.”²³ This article briefly discussed the classification of the INSURV reports. Another blog was found on the USNI Blog webpage titled “INSURV Classified, So Smile Bigger and Clap Louder!” This blog discussed how the INSURV reports had been used to inform the public regarding ship condition and how leadership within the Navy did not understand the need for this decision.²⁴

Some articles provided background regarding inspections in general. The article “CNO Approves Plan to Streamline Training, Reduce inspections” was a U.S. Navy press release that was found online on the Find Articles webpage.²⁵ An article titled “Greater Inspections for Surface Ships” discussed new initiatives to improve the inspections on board Navy ships by partnering with the American Bureau of Shipping, which is a process MSC uses.

The review of how the MSC prepared for the inspections followed a similar path. Using the MSC instructions for the SMART inspection explained how the ships prepared. The MSC instructions were very thorough regarding what is expected and required. To determine whether this guidance was the only preparation being conducted, it was important to review the lessons learned from the Ship Inspection Branch. An email conversation with a member of the Ship Inspection Branch revealed that the branch intended on publishing lessons learned beginning in 2010. This email is included as Appendix D.

The email conversation also confirmed that MSC attempted to initiate a program that provided extra manpower to support SMART preparations, but was discontinued quickly due to lack of available personnel. This email also verified that the program was started based on the Navy's use of extra personnel during their preparations. The MSC Ship Inspection Branch point of contact also confirmed via email that no external funds were provided to the MSC ship. This email conversation confirmed that the MSC preparation process did not include an informal process of external support. See Appendix D.

To determine the preparation process in use by the Coast Guard, a review of the same INSURV board instructions that are used for the U.S. Navy was required. Though generic, the instructions provided some insight. The key to understanding the preparation process within the Coast Guard was to contact the Research and Development Command, which is the Coast Guard command that runs the inspection for new construction Coast Guard vessels. No point of contact was established, which severely limited the information that was obtained regarding these preparation processes.

A review of these processes clarified any confusion regarding what was expected of ships within the Navy, MSC and Coast Guard, to prepare for an INSURV inspection. Once these processes were understood the data needed to be collected to support the study.

Data Collection Sources

Since the Navy was the only service that used external support during its preparation process, its data would be the key to the quantitative analysis in this study. The data collected to support the study was not in any previously published literature.

This data was collected from various sources and then consolidateded to support the study. The INSURV Board provided data in the form of their archives of the ships within the last two years. These archives were essential regarding the results of previous CG inspections. Using this data, quantitative results were accessed to determine the multiple variables. Scores in the various areas, as well as the number of inspections were important to the quantitative analysis.

Using the information and data from the CG CLASSRON was intended to be another key piece of the quantitative analysis, but no data existed regarding external support. Naval Surface Forces Command was also contacted via email to collect this data. The INSURV section within the command reported that they did not collect this data.

The MSC was unable to provide external support data since they did not use external support for any extended period of time. This nullified the need for any inspection result data from MSC, since no comparison could be made to support this study.

The lack of a knowledgeable Coast Guard point of contact eliminated the possibility of obtaining conclusive data regarding external support. Without this data, the inspection result data provided by INSURV was not needed.

¹Department of the Navy, About Us, "Mission," <http://www.public.navy.mil/usff/insurv/Pages/default.aspx> (accessed 25 September 2009).

²Department of the Navy, About Us, "History," <http://www.public.navy.mil/usff/insurv/Pages/default.aspx> (accessed 30 November 2009).

³Title 10 US Code, *Armed Forces*, Sec. 7304, "Examination of Vessels: Striking of Vessels from Naval Register," January 2004, <http://vlex.com/vid/examination-striking-vessel-register-19219551> (accessed 14 December 2009).

⁴Ibid.

⁵Board of Inspection and Survey, INSURVINST 4730.1F *Trials and Inspections on Surface Ships* (Virginia Beach, VA, 28 February 2008).

⁶Commander Military Sealift Command, COMSC INSTRUCTION 4730.4, *Ship Material Assessment and Readiness testing (SMART) Inspections on MSC Vessels*, (Washington, DC, 14 August 2009).

⁷Department of the Navy, “Mission,” <http://www.msc.navy.mil> (accessed 5 December 2009).

⁸Steven Frazier, MSC N75 Ship Inspection Branch, email to author, 19 March 2010, “Use of Inspection and Survey (INSURV) Board in the Military Sealift Command.”

⁹Robert Strait, “How To Prepare For INSURV,” *Sea and Shore* (Fall 2006), <http://www.safetycenter.navy.mil/media/seashore/issues/fall06/HowToPrepare.htm> (accessed 4 April 2010).

¹⁰United States Naval Institute Foundation Blog, “System Coaches and Inflexible Playbooks,” USNI Foundation, October 2009, <http://blog.usni.org/2009/10/08/system-coaches-and-inflexible-playbooks/> (accessed 4 April 2010).

¹¹Philip Ewing, “Cruiser Study: InSurv prep means extensive outside help” *Navy Times*, 12 October 2009, <http://infoweb.newsbank.com/iw-search/we/InfoWeb> (accessed 30 November 2009).

¹²President of the Board of Inspection and Survey, “Chosin Insurv Text,” *Navy Times*, 20 April 2008, http://www.navytimes.com/news/2008/04/navy_chosin_insurvtext_042008w/ (accessed 4 April 2010).

¹³Christopher Cavas, “U.S. Navy Finds Glaring Flaws in 2 Surface Ships,” *Defense News*, 20 April 2009, <http://www.defensenews.com/story.php?i=3488407> (accessed 25 November 2009).

¹⁴Commander Naval Surface Forces, N43 Branch, “Fleet Review Panel: Review of INSURV Failures, 2003-2009,” 22 September 2009.

¹⁵P. Smith, “PB11 Issue Paper,” Email from LCDR Edward J. Schweighardt, Naval Surface Forces Atlantic, N037, 20 January 2010.

¹⁶Philip Ewing, “Lean Manning saps Morale, Puts Sailor at Risk,” *Navy Times*, 21 October 2009, http://www.navytimes.com/news/2009/10/navy_leanmanning_101909w/ (accessed 4 April 2010).

¹⁷Francis R. Donovan, Maurice Gauthier and Stan Brown, “How Many Sailors Can Ships Afford?,” *United States Naval Institute Proceedings* 124, 12 (December 1998): 54-8, <http://lumen.cgsccarl.com/login?url=http://proquest.umi.com/pqdweb?did=36901177&sid=1&Fmt=3&clientld=5094&RQT=309&VName=PQD> (accessed 30 November 2009).

¹⁸Commander Naval Surface Forces, “SWE Surface Board: Face to Face,” 31 March 2010, <http://f2f.wikispaces.com/file/view/TAB+2+BriefDay1.ppt> (accessed 20 April 2010).

¹⁹Margaret Roth, “Navy’s “New World” of Optimal Manning,” *Navy League: Sea Power*, December 2004, http://www.military.com/New_Content/0,13190,NL_Optimal_121304,00.html (accessed 18 March 2010).

²⁰Otto Kreisher, “Admiral: Fleet Size Hinges On Larger Maintenance Budget,” *National Journal’s Congress Daily AM*, 13 January 2010, <http://www.nationaljournal.com/congressdaily/> (accessed 20 January 2010).

²¹Department of the Navy, “Keep InSurvs Public,” *Navy Times*, http://www.navytimes.com/community/opinion/navy_editorial_insurvs_031609a/ (accessed 25 November 2009).

²²Dale Eisman, “Lawmakers Seek Openess After Navy Closes Reports,” *McClatchy-Tribune News*, 4 May 2009, <http://proquest.umi.com/pqdweb?did=1697102351&sid=2&Fmt=3&clientld=5094&RQT=309&VName=PQD> (accessed 25 November 2009).

²³Christopher Cavas, “U.S. Rep. Forbes: Put Transparency in Budget Process,” *Defense News*, 22 June 2009, <http://infoweb.newsbank.com/iw-search/we/InfoWeb> (accessed 30 November 2009).

²⁴United States Naval Institute Foundation Blog, “INSURVs Classified, So Smile Bigger and Clap Louder!,” *USNI Foundation*, February 2009, <http://blog.usni.org/?p=1535> (accessed 25 November 2009).

²⁵Department of the Navy, “CNO Approves Plan to Streamline Training, Reduce Inspections,” February 2005, http://findarticles.com/p/articles/mi_pnav/is_20050229/ai_1012382617/ (accessed 14 December 2009).

CHAPTER 3

RESEARCH METHODOLOGY

The research methodology of this study consisted of using qualitative information and quantitative data research regarding the inspections of Navy, MSC and Coast Guard ships. This study merged the qualitative and quantitative data from multiple sources and used these findings to draw conclusions.

Qualitative Research

The qualitative collection related to understanding the background, processes and purpose of the inspections across the services. The research began with a review of the missions of all these commands and how they related to the INSURV. The missions of the commands were pulled from their respective websites and instructions. The Board of INSURV mission with respect to Navy and Coast Guard inspections was covered on their website.¹ The MSC mission was inherently nested with the Board of INSURV mission, but it was important to review the MSC mission separately for comparison. The MSC mission with respect to the SMART inspections was found in the COMSC INSTRUCTION 4730.4 *Ship Material Assessment and Readiness Testing (SMART) Inspections on MSC Vessels*.²

A search of the websites revealed supporting instructions that covered the inspections for Navy and MSC ships. By reviewing this supporting documentation a somewhat basic understanding of the relationship between the Board of INSURVS, the MSC and the Coast Guard with respect to the inspections was established. For the Navy the OPNAV INSTRUCTION 4730.5P, *Trials and Material Inspections (MI) of Ships*

Conducted by the Board of Inspection and Survey, was the primary source for the relationship between the Board of INSURV, the Navy and the Coast Guard. The COMSC INSTRUCTION 4730.4 was the main source for understanding the relationship between the Board of INSURV and the MSC INSURV (SMART) inspection. This basic understanding was insufficient in some areas, specifically regarding the relationship between the Board of INSURV and the Coast Guard. Once an understanding of the relationship between the services was established it was imperative to fully understand the INSURV process.

Inspection Process

To understand the official INSURV process, including the preparations, it was necessary to identify references within the supporting documents. These references were critical to understanding how the Board of INSURV conducts inspections and how the MSC conducts SMART. Since the Coast Guard uses the INSURV process and the teams from the Board of INSURV, the INSURV process covers their service. The references are extremely detailed and provided a vast amount of information regarding the processes. Inexperience regarding the MSC SMART process required an email discussion with MSC representatives to answer selected questions regarding preparations for the inspection.³ These questions were critical to understanding the official preparation process for MSC ships. Now that the official process was understood, it was necessary to review the unofficial process.

The review of the unofficial process for the inspections was one of the most difficult tasks. Reviewing the process of every ship within the Navy, MSC and Coast Guard would be extremely time consuming. To resolve this issue it was determined that

the review of the lessons learned released by the Board of INSURV and ships would provide useful insight to the unofficial process and preparations that were not included within the inspection instructions. These lessons learned along with the official process were important to qualitative understanding of the INSURV process. Once the entire process was understood it was necessary to understand the purpose of these shipboard inspections.

Inspection Purpose

Establishing a baseline purpose for INSURV was necessary to answer the primary research question. This baseline was the standard for comparing the effect of external support on the current inspection. Identifying the baseline purpose of the INSURV required a review of the INSURV instructions developed by the INSURV Board. These instructions, the OPNAV INSTRUCTION 4730.5P *Trials and Material Inspections (MI) of Ships Conducted by the Board of Inspection and Survey* and the Title 10 USC Section 7304, provide a simple and clear purpose for establishing and conducting INSURVs. Once the baseline purpose was understood, the qualitative research for this study was complete. The next step to complete was the quantitative data collection.

Quantitative Research

The quantitative portion of this study was the bulk of the research and merged the data collected by INSURV and CGs. It was the merging and comparing of this data that was crucial to the analysis of the study. The data collection methodology was only needed for the Navy, since the MSC did not use external support and the use of external support in the Coast Guard could not be verified. The methodology consisted of

collecting inspection results, extra funding data, extra manpower data and pre-INSURV conditions.

Inspection Results

To begin the quantitative study, it was important to obtain the results of all the inspections since January 2007. To collect the Navy, it was necessary to contact the INSURV Board and request the inspection reports for all CGs within the time limitations mentioned. Of all the reports received, only the reports for the CG class were used for the analysis. The data received from the INSURV Board was in the form of a database. The database contained quantitative data regarding the final scores of the ship's inspection. The database for each ship contained the overall score and the area scores.

The final overall scores, as a percentage, were pulled from the database and placed in a generated database. See table on page 44. The area scores, as a percentage, were broken down by area and placed in the same database. Grades were assigned in nineteen areas. These area scores were used to compare the performance of each ship and to draw conclusions necessary for the analysis.

Due to the classification limitations regarding the release of operation readiness reports on U.S. vessels, all the ship names were removed and alphabetic identifiers assigned to simplify the merging of follow-on data.⁴ It is important to note that the databases included in this study will show only the alphabetic names. The intent of this rationale was to keep this study unclassified and increase the availability to a wider audience. Once the Navy inspection results were collected, the collection of external funding was the next step.

External Funding

The collection of the external funding data was important in establishing a quantitative data point to represent part of the external influences. The quantitative collection of the external funding data, provided to ships during their preparation of the INSURV, was challenging. The original intent of the study was to collect this data from one or two commands, similar to the final INSURV results. This process was not effective, requiring extensive research to track down commands and points of contact, throughout the Navy, MSC and Coast Guard, who collected this data. This original methodology was unsuccessful with the exception of data from two ships. Since only this data was available the methodology was adjusted to compare the data from these two ships and draw conclusion from this comparison. As with the inspection result data, the names of the ships were changed using the alphabetic identifiers established during the previous database. The ship data was placed in a common database to simplify the comparison. See Appendix E.

The collection of the U.S. Navy external funding data required various methods to determine the funds allocated to each ship. The original intent was to collect the data by contacting the CLASSRONs and Naval Surface Forces Command. This process was ineffective.

External Manpower

Once all the funding data was collected for the study, the next task was to collect the external manpower data. This data, like the external funding data was critical to understanding the extent of the external influences during the preparation for the inspection. The manpower data was collected and merged with the funding databases

using the alphabetic identifiers. See Appendix E. The methodology for collecting this manpower data was similar to the funding data. The original intent of the study was to collect this data from the same sources that provided the funding data. Once again the original sources did not maintain this data, so this methodology was changed. The end result was data from the two ships that provided the funding data. The collection of the manpower data completed the quantitative research for this study.

Analysis Methodology

Though collecting the qualitative and quantitative data was a large portion of the methodology for this study, it is important to clarify the reasoning behind collecting and merging this focused data. The qualitative research was conducted to answer and support the answering of the primary research question regarding the effect of external support on the purpose of the inspection. The mission and purpose research was conducted to directly answer the secondary research question regarding the purpose of the INSURV inspection for the Navy, MSC and Coast Guard ships.

To answer what preparation process is used for INSURV inspections onboard Navy, MSC and Coast Guard vessels, it was necessary to research the inspection process and the preparation process. Researching the preparation process alone would have answered the question, but thoroughly understanding the inspection process provides incredible insight that was important in the analysis of the preparation processes. In addition it answered the secondary research question, whether MSC and Coast Guard preparations included external support.

Collecting the inspection results for the ships was not important in directly answering the research questions; however, it was crucial to the analysis in determining

the importance of the external support to the INSURV results. Collecting data from the INSURV Board and the two ships was crucial to providing quantitative data to support the analysis of what and how much external support was provided to these ships in preparation for the inspection. By analyzing and comparing this quantitative data, an assessment was made regarding the importance of this external support. Based on this assessment and by reviewing the purpose of the INSURV inspections, the primary research question was answered.

¹Department of the Navy, About Us, “Mission,” <http://www.public.navy.mil/usff/insurv/Pages/default.aspx> (accessed 25 September 2009).

²Commander Military Sealift Command, COMSC INSTRUCTION 4730.4, *Ship Material Assessment and Readiness testing (SMART) Inspections on MSC Vessels*, (Washington, DC, 14 August 2009).

³Steven Frazier, MSC N75 Ship Inspection Branch, email to author, 19 March 2010, “Use of Inspection and Survey (INSURV) Board in the Military Sealift Command.”

⁴Department of the Navy, “Keep InSurvs Public,” *Navy Times*, http://www.navytimes.com/community/opinion/navy_editorialinsurvs_031609a/ (accessed 25 November 2009).

CHAPTER 4

ANALYSIS

Qualitative Analysis

The qualitative analysis answered two secondary research questions. What preparation process is used for INSURV inspection onboard Navy, MSC, and Coast Guard vessels? What is the purpose of the INSURV inspection onboard Navy, MSC and Coast Guard vessels? These research questions were essential in establishing a basic understanding of not just the supporting documentation, but also to identify if the inspection was used for other purposes. The qualitative analysis covers the inspection process and the inspection purpose.

Navy Qualitative Analysis

The analysis of the Navy inspection process required the review of the actual inspection, the preparation process, and the inspection purpose for the Navy, MSC and Coast Guard vessels.

The analysis of the INSURV inspection process for the Navy consisted of reviewing the preparation process and the actual inspection process. The preparation process used by Navy ships is an integral component of the INSURV inspection. As directed by the Board of INSURV Instruction 4730.1F, ships should use the INSURV check sheets to prepare for the inspection. See Appendix F for a list of the check sheets. The actual check sheets can be found on the INSURV website.¹ These check sheets, if completed thoroughly should prepare a ship for the upcoming inspection. The check sheets cover every major area and are designed to take months to complete correctly.

The extent of these check sheets and the general condition of the Navy vessels caused some ships to request additional support to complete repairs in preparation for this inspection.² Initially this support was in the form of limited funding and a few personnel. Over the years this request became the norm and included large amounts of funding and manpower, though there is no documentation supporting this trend. Inspection lessons learned from the INSURV Board do not mention the use of extra funds or manpower, only that better self-assessment is the key.³

In the PB11 Issue Paper, included as Appendix C, P. Smith poses the question, what is the status of improving results on INSURV inspections? The response section has two key bullets, which happen to be the first two. “An additional I-180 Flag level TYCOM [Type Commander] In Progress Review to prioritize support for successful preparation, planning, and execution.” See Appendix C. And “increased preparation oversight from ISICs and direct support for system expertise from...CLASSRONs.” See Appendix C. These bullets signify that though no official document directs the use of external support, it is being used by ships and more importantly there is consideration for increasing the support.

The inspection process is and should be supported by the ship’s crew. If additional external support was needed as considered by the PB11 Issue Paper, and as unofficially leaked in the case of the USS San Jacinto, then why this change?⁴ Analyzing the factors that have changed during this time frame has revealed very little concrete evidence. The ships themselves have aged, but are basically the same. The process has changed slightly, but not enough to require external support. So what has caused the use of this external support and caused the lessons learned message from the Commanding

Officer of the USS San Jacinto to become public? The cause might be the changes in the three areas of funding, manning and age.

But the real question is, are these problem areas? “Funding restraints are leading to a sacrifice in redundancy.”⁵ In addition, “funding constraints delay timely repairs,” which causes growth in repair work and limits capabilities.⁶ The surface Navy needs more maintenance funding if it is to meet its goals in fleet size.⁷ Vice Admiral Kevin McCoy who is the Commander of the Naval Sea Systems Command discussed a “new program to improve ship maintenance [that] is being developed for the FY12 budget and he is sure there will be a ‘plus up’.”⁸ Once again, the intent is not to analyze this funding change, only to identify it.

Manning has also been decreased due to the Optimal Manning initiative.⁹ The official loss in the last six years is 60,000 personnel.¹⁰ CG’s specifically have lost “40 to 50 sailors.”¹¹ With this initiative, the Navy extended the weekly working hours from “67 hours a week to 70” hours a week in 2002.¹² This initiative combined with the requirements for ships to send sailors to support ground operations in Iraq and Afghanistan. As with the funding, this study will not analyze the reasoning behind this decision, only identify it.

The final factor that has changed over the years is the age of the ships. As the years pass, the age of the ships continue to increase. These three factors appear to play a critical role in the need for external support during the INSURV preparation process. To determine the relationship between this external support and the INSURV inspection it is necessary to analyze the purpose of the inspection.

The actual inspection process is explained in great detail within the Board of INSURV instruction 4730.1F. It describes the actual inspection process, which was added to this study as Appendix A. In this appendix the inspection process was broken down into four distinct phases, Pre-Underway, Underway, Post-Underway, and Out-brief.

The Pre-Underway phase consists of “safety related demonstrations required for completion prior to underway” operations.¹³ Once the ship meets all these safety requirements, then they are allowed to commence the underway phase. The underway phase consists of “operational demonstrations of ship’s equipment and systems.”¹⁴ The purpose of this phase is to identify material discrepancies during these operational demonstrations. Once this underway phase is complete the ship returns to port and begins the post-underway phase. This phase consists of opening and inspecting selected equipment, such as engines, air conditioning plants and air compressor units. This equipment is typically selected based on the inspection team’s previous experience and understanding of common problems. This phase also includes a structural inspection to determine weak areas and damage.

The final phase was the out-brief in which the inspection team provides a graded report based on the various discrepancies within the major areas. The nineteen major areas graded on board CGs are damage control, deck, auxiliaries, electrical, propulsion, anti-submarine warfare (ASW), communications, information systems, navigation, operations, weapons, aviation, naval occupational safety and health (NAVOSH), ventilation, environmental protection, supply, habitability, medical, and preservation. The definitions of these areas are included within the glossary. These grades include discrepancies of equipment, personnel and training. If a demonstration could not be

completed due to equipment, personnel or lack of training, it is still considered a failed demonstration. This analysis of the Navy INSURV inspection process seems straight forward, but it was also necessary to review the preparation process that Navy vessels use to prepare for this inspection.

Navy INSURV inspection purpose initially appeared to be rather straight forward, but to understand the true purpose it was necessary to review the intended and unintended results of INSURV to fully understand its purpose. The end result was an official purpose and an unofficial purpose. The official purpose is to conduct “periodic material inspections . . . provide assurance of an inspected unit’s fitness for further service, identify any conditions that limit their capability to carry out assigned missions, and report statistical information regarding material deficiencies.”¹⁵

This official purpose must also include an additional purpose provided by the CNO in the OPNAV Instruction 4730.5P, which states that the inspection purpose includes “establishes inspection policy which promotes ascertaining individual command’s self-assessment effectiveness.”¹⁶ This additional purpose is important because the CNO believes that a “skilled self-assessment capability promotes responsibility and accountability with each command” and that “each inspection report should be used to evaluate the status of the command’s material readiness and its self-assessment effectiveness.”¹⁷ This additional purpose became important because it now provided a linkage between the inspection result and the ability of the command to self-assess effectively. This linkage is critical in understanding the priority assigned to the preparation of this inspection both for the ship and senior commands. A commander’s inability to self-assess his command, displays failure. A similar argument could be made

for senior commanders one or two echelons above the ship, which are unaware of a crew's inability to self-assess.

The end result, of this fear of failure, is excessive priority and resources provided for the preparation of INSURV. As a result, the unofficial purpose of the inspection was to identify commanders who lacked the ability to self-assess or lead proper self-assessment. Though this purpose was not official and never will be, this purpose still drastically affected the actions of senior leadership during the preparation and inspection. But should the INSURV serve this purpose? The CNO also mentioned that these inspections “provide assurance...that mechanisms to identify, document, and resolve material discrepancies are adequate; that these systems are being judiciously executed and are providing the commensurate level of effectiveness, efficiency, and material readiness.”¹⁸

If in fact all commanders want to succeed, then what was causing ships to need external support or fail? If these mechanisms that are being reviewed, during the INSURV inspection, are so effective what is the purpose of the external support? The review of the correlation between the external support and the actual inspection result will be covered in the quantitative analysis.

The official purpose of the inspection has not changed over the years, except for the reference regarding self-assessment. Whether it was this change or just the natural desire of commanders to succeed, that caused the prioritization or undue influence on the INSURV, may never be understood. It is important to understand that the official purpose of the Navy INSURV inspections and the unofficial purpose caused ships to adapt their preparation process to ensure success. Since Navy and the MSC use the same governing

documentation regarding these inspections, it was important to this study to determine where the MSC differs and why.

MSC Qualitative Analysis

The MSC qualitative analysis consisted of analyzing the inspection process, preparation process and the inspection purpose. The MSC inspection, SMART, is derived from the INSURV documentation. As a result, preparation process, the inspection process, and purpose should be fairly similar. A thorough analysis of the SMART inspection will reveal differences that will be critical to answering the secondary research questions.

The MSC SMART inspection preparation process is also explained in detail within the COMSC Instruction 4730.4. In this instruction the COMSC directs the SMART team leaders to provide the test memos (demonstration procedures) to the ship for review. These memos are provided early and feedback is expected by the shipboard management team (SMT) regarding the validity of these test memos. This ensures the procedures are correct for the specific ship and allows the ship to change these procedures based on configuration and equipment.

The SMART team is also responsible for providing the SMT a list of installed and portable instrumentation that must be calibrated for the inspection. This helps the SMT manage its resources to ensure it has the correct instrumentation ready and minimize confusion.

The SMART preparation process also allows the shipboard management team to schedule inspections on certain equipment. If these inspections are conducted within 60 days of the actual SMART inspection then these final reports will stand in place of an

actual inspection during the SMART inspection. Advanced testing may occur in various areas and include any ABS testing events. The Navy conducted pilot inspections “in conjunction with ABS [that] began last year.” Refer to page 1 of Appendix G. What this advance testing provided MSC ships is a way to repair equipment and take credit for the testing at the same time. This advance testing if scheduled properly, within 60 days, can significantly minimize the amount of testing needed during the SMART inspection.

In email discussions with members of the MSC Ship Inspection Branch, it was discovered that other than the Military Sealift Fleet support Command (MSFSC) staff that are sent to monitor the ships progress during their preparation, no other extra manpower is utilized from other commands. Refer to page 1 of Appendix D. Now that the differences in the SMART inspection preparation process were identified, it was necessary to analyze the purpose of the SMART inspection.

The MSC SMART inspection process is explained in detail within the COMSC Instruction 4730.4. It references the same four phases as in the Navy INSURV process. The SMART process initially differs in the methods and the responsibility of the process. It is the COMSC who is responsible to act as the liaison with the INSURV Board. In addition the MSFSC is responsible for the monitoring the ship’s preparations for the SMART inspection. The MSFSC is also responsible for scheduling the inspection to ensure it is coordinated with the MSC required inspections, such as the ABS Continuous Survey Program.

The ABS Continuous Survey Program routinely conducts surveys of major machinery, such as engines, to ensure standards are enforced to the ABS standard. As long as the ABS inspections are within periodicity and the machinery is operating within

limits, the SMART inspection does not open this equipment for inspection during the Post-Underway phase.

The SMART process uses similar demonstrations to grade the MSC vessels. The thirteen graded areas are structural; main propulsion; electric power generation and distribution; electronics and navigation; auxiliary machinery and systems; outfitting and furnishings; supply and food service; environment protection; occupational safety and health; medical; aviation; damage control; and computer LAN systems. These areas are defined in detail in the glossary.

The final difference between the MSC SMART inspection and the Navy INSURV inspection was that the SMART inspection was a five day, vice four day, event conducted by naval officers from the COMSC N75 department. Since the inspection process was very similar, it would seem only natural that the SMART purpose would also be similar.

The purpose of the SMART inspection is readily referenced within the COMSC Instruction 4730.4. It references the purpose described in the OPNAV Instruction 4730.5 and the INSURV Instruction 4730.1. COMSC Instruction 4730.4 only restates that the purpose of the SMART inspections is required “for periodic inspection of all naval vessels by a board of naval officers to assess their material condition and fitness for further service.”¹⁹ And it specifies that this responsibility was delegated by the PRESINSURV to the MSC, under the SMART program, for MSC Government Owned Government Operated vessels.

A careful review of the supporting documentation for the SMART inspections only revealed that the MSC program appeared intent on identifying and understanding the cause of problems. For example a discrepancy noted during the inspection must include a

plan to identify the cause or correct the problem after a thorough analysis is completed between the SMART inspection team and the SMT. This point displays a drastic difference between the Navy and MSC inspections. Now that the MSC processes and purpose are analyzed it is necessary to continue with the Coast Guard qualitative analysis.

Coast Guard Qualitative Analysis

The Coast Guard qualitative analysis was conducted in the same manner as the Navy and MSC analysis. Since the Coast Guard used the same governing documents and team as the Navy INSURV it would seem logical that the preparation process, inspection process and the purpose of the inspection would be the same.

The preparation process for the Coast Guard INSURV appeared to follow the same preparation process as the Navy. As a result during the analysis, it was expected that extra manpower and funds would be a significant part of the preparation process. The lack of sufficient resources limited the information that was collected in this area. It is certain that funds were allocated for the inspection to assist with discrepancies, but because these funds were part of the building contract, accessibility was difficult. Analyzing the preparation process must therefore resort to the understanding of the process established by the INSURV Board, which was previously discussed.

The INSURV inspection process for the Coast Guard vessels is the same as the Navy vessels. The Coast Guard uses teams from the INSURV Board to conduct the inspections on the Coast Guard ships. These teams follow the same phases as mentioned previously. To limit the repetitiveness of this study, the analysis of the Coast Guard INSURV process should then focus on the deviations from the Navy INSURV process.

One key difference was the type and amount of systems onboard the Coast Guard vessels. This difference was notable, but does not affect the inspection process. The INSURV inspection process for Coast Guard also includes Coast Guard officers, but does not change the process of the inspection.

The purpose of the Coast Guard inspection should also remain the same, since it falls under the INSURV governing instructions. This is a true statement, with one minor exception. Since the Coast Guard used these inspections solely for pre-commissioning inspections it is important to add that the purpose of this inspection is to ensure that shipbuilding standards are maintained.

Quantitative Analysis

Now that the qualitative analysis laid the baseline for the study, it is necessary to analyze the data collected on the INSURV scores for CGs to answer the primary research question. The focus of the quantitative analysis is to determine if the external support provided during the preparation process is affecting the INSURV inspection results. This quantitative analysis will begin with an overall analysis of all the CG scores from 2007 through 2009. This analysis will then be followed by an analysis of CG A's data and then a comparison of CG B's data with CG A.

CG Class Average Analysis

To begin the review of the CG data between 2007-2009 it is necessary to refer to Table 1. Table 1 contains the raw scores from all nine CGs that conducted INSURV within the 2007 to 2009 time period. The areas are listed on the left side of the chart and covered in the qualitative analysis.

These nineteen areas were the common areas that all CG's were evaluated during the INSURV inspection. CG B and CG I each have one area that does not have values. The scores in these areas were not available in the consolidated data; however, the average calculations were calculated to ensure these two pieces of lost data did not affect the average score negatively. It is also important to understand remember that INSURV grades these areas based on the following scale.

Satisfactory (SAT) (0.80 – 1.00)

Degraded (0.60 – 0.79)

Unsatisfactory (UNSAT) (0.00 – 0.59)

Table 1. CG INSURV Data (2007 to 2009)

Areas	CG A	CG B	CG C	CG D	CG E	CG F	CG G	CG H	CG I	CG Average
Damage Control	0.73	0.75	0.56	0.68	0.71	0.68	0.72	0.84	0.37	0.67
Deck	0.75	0.6	0.57	0.53	0.56	0.54	0.49	0.61	0.78	0.60
Auxiliaries	0.75	0.72	0.59	0.57	0.66	0.48	0.76	0.88	0.71	0.68
Electrical	0.79	0.83	0.83	0.83	0.79	0.79	0.83	0.85	0.82	0.82
Propulsion	0.86	0.58	0.65	0.73	0.73	0.46	0.8	0.83	0.75	0.71
ASW	0.87	0.82	0.91	0.91	0.89	0.86	0.91	0.85	0.89	0.88
Comms	0.83	0.57	0.83	0.89	0.84	0.72	0.7	0.75	0.77	0.77
Information Sys	0.89	0.85	0.86	0.93	0.89	0.83	0.92	0.65	0.85	0.85
Navigation	0.93	0.84	0.89	0.86	0.88	0.9	0.92	0.84	0.9	0.88
Operations	0.75	0.55	0.64	0.84	0.67	0.92	0.73	0.84	0.63	0.73
Weapons	0.79	0.84	0.83	0.85	0.92	0.88	0.78	0.88	0.78	0.84
Aviation	0.71	0.58	0.76	0.61	0.72	0.57	0.89	0.86	0.74	0.72
NAVOSH	0.78	0.75	0.81	0.73	0.76	0.78	0.8	0.84	0.72	0.77
Ventilation	0.67	0.63	0.72	0.74	0.78	0.81	0.74	0.64	0.71	0.72
Env Protection	0.62	0.57	0.79	0.76	0.63	0.51	0.78	0.82	0.8	0.70
Supply	0.75	0.78	0.75	0.78	0.82	0.81	0.8	0.89	0.8	0.80
Habitability	0.81	0.8	0.8	0.75	0.81	0.84	0.85	0.86	0.82	0.82
Medical	0.82		0.93	0.94	0.95	0.95	0.82	0.76	0.88	0.88
Preservation	0.75	0.73	0.78	0.74	0.8	0.9	0.38	0.93		0.75
Average Score	0.78	0.71	0.76	0.77	0.78	0.75	0.77	0.81	0.76	0.77

Source: Created by author.

The average scores of the ships, annotated in the average score bolded across the bottom of the chart, shows that the overall average of all ships, but one, are below the INSURV SAT range. This clearly displays the trend of below satisfactory scores for these inspections.

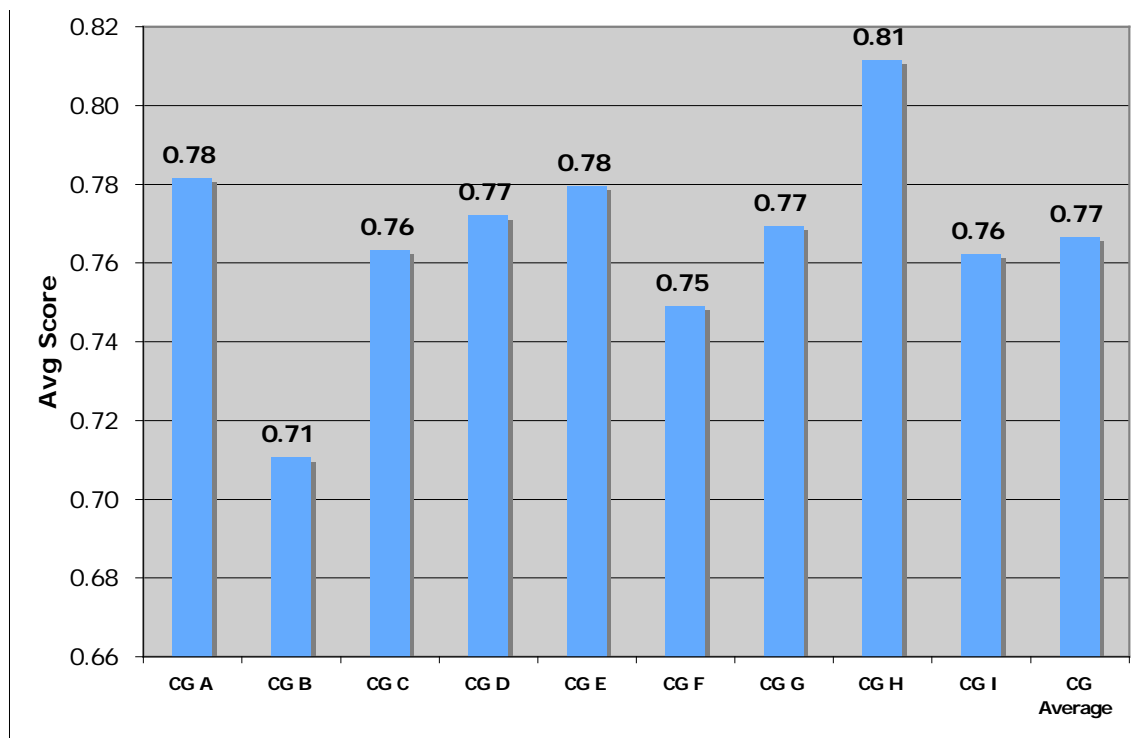


Figure 1. CG INSURV Average Scores

Source: Created by author.

Figure 1 displays the average score of each ship as a bar graph with the CG average as the final bar. The only ship to achieve a SAT average was CG H. It is important to note that CG H only scored 1 percent higher than the minimum SAT score. The average CG total score was calculated to be .77. This score was an average of all the ship's average scores. It is also important to note that this score is .03 below the minimum SAT score. Only three ships (CG A, E and H) performed better than the total CG average of .77. Two other ships (CG D and G) scored equal to the total CG average.

This figure verifies the discussion at the beginning of this study that the CGs, as a class, is typically performing below acceptable standards.

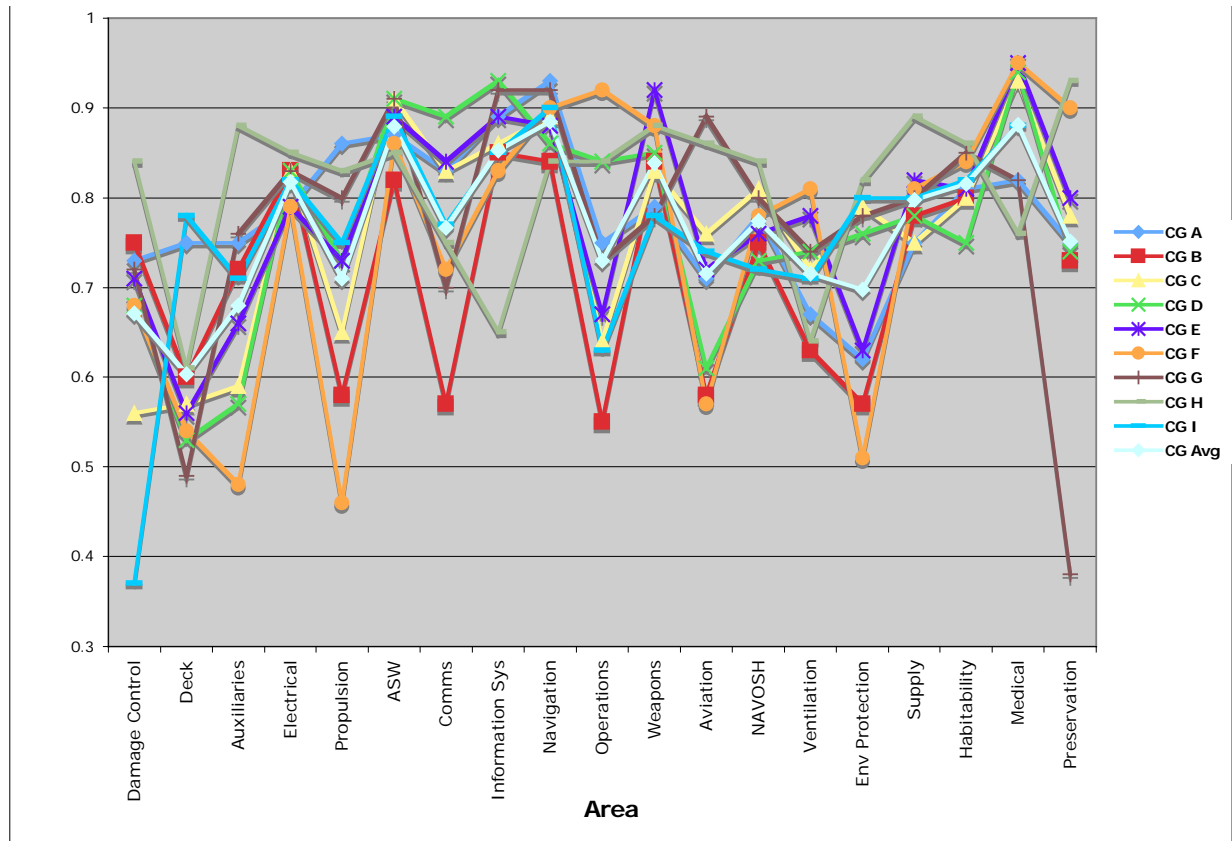


Figure 2. CG INSURV Comparison by Area.

Source. Created by author.

Reviewing Figure 2 identifies which areas appear the most problematic for CGs. Damage control, deck and auxiliaries are the lowest with average scores of .67, .60 and .68 respectively. Propulsion, communications, operations, aviation, NAVOSH, ventilation, environmental protection and preservation are all within the .70 to .77 range, which is below the minimum SAT score. Electrical, information systems, weapons,

supply and habitability, all fall within a low SAT range of .80 to .85. Anti-submarine warfare, navigation and medical are the leaders with an average of .88. These problem areas will be mentioned further, while analyzing the external support of CG A.

CG A Analysis

Now that the overall class analysis of the CGs is complete, the quantitative analysis will continue with an analysis of CG A's scores individually and then an analysis of the external support provided to CG A. CG A's results are used to form the foundation of the comparison between CG A and CG B.

CG A's inspection results are available in Table 2, which was derived from Table 1. The table shows the delta between CG A's scores and the class averages. The scores show low scores in environmental protection and ventilation, .62 and .67 respectively. These two low scores are well below the class average. Damage control, deck, auxiliaries, operations and supply scored a little higher than the lows with .73, .75, .75, .75 and .75 respectively. These scores are above the class average for these areas with exception of supply, which is .05 below the class average. NAVOSH, electrical and weapons scored .78, .79 and .79 respectively. Electrical and weapons are below the class average by .03 and .05 respectively, while NAVOSH is .01 above the class average. Habitability, medical and communications are the first areas to score above the .80 minimum SAT score; however, medical and habitability were below the class average. Communications was higher than the class average. Of the other areas, only anti-submarine warfare scored less than the class average. In total, ten out of the nineteen areas were above the class average. Of the nine that were lower than the class average,

four were within .03 or less of the class average. The final five were below the class average between .05 and .08.

Table 2. CG A – CG Average Comparison

Scores	CG A	CG Average	Delta
Damage Control	0.73	0.67	0.06
Deck	0.75	0.60	0.15
Auxiliaries	0.75	0.68	0.07
Electrical	0.79	0.82	-0.03
Propulsion	0.86	0.71	0.15
ASW	0.87	0.88	-0.01
Comms	0.83	0.77	0.06
Information Sys	0.89	0.85	0.04
Navigation	0.93	0.88	0.05
Operations	0.75	0.73	0.02
Weapons	0.79	0.84	-0.05
Aviation	0.71	0.72	-0.01
NAVOSH	0.78	0.77	0.01
Ventilation	0.67	0.72	-0.05
Env Protection	0.62	0.70	-0.08
Supply	0.75	0.80	-0.05
Habitability	0.81	0.82	-0.01
Medical	0.82	0.88	-0.06
Preservation	0.75	0.75	0.00
Average Score	0.78	0.77	0.02

Source. Created by author.

CG A requested external support during its preparation process, in the form of funding and manpower. The documentation of this support was detailed and thorough. CG A identified “a shortfall of \$1.5M, 30 people”²⁰ Based on this request funding and

manpower was provided. The funding provided came from two sources, the CG CLASSRON and from the continuous maintenance funds. The continuous maintenance funds are money already assigned to the ship, but for future fiscal quarters. Continuous maintenance funds are not external, so this analysis will not take in to account these funds. The CG CLASSRON provided \$1,360,680 to support CG A's INSURV preparation process.²¹ This augment nearly met the funding shortfall identified by the ship.

In addition to the external funding, CG A also requested and received external manpower support. Table 3 lists the specifics of the external manpower support to CG A.²² The total personnel assigned to help CG A with the INSURV preparation process was 88 personnel from various commands. The names of the commands have been deleted, but their types remain. The USS designator refers to active naval warships. CGRON refers to the CG CLASSRON. DDGRON refers to the destroyer (DDG) CLASSRON. PCU refers to ships who are not yet commissioned. The other units are shore-based units that routinely have extra personnel that can be assigned to ship for short periods of time. It is important to recognize the amount of personnel provided from other ships and staffs who already have limited personnel.

Table 3. CG A – External Manpower

Source	Personnel Type	Personnel #	Days	ManHours
CSG	N4/ENCS/GSMC/BM1	4	90	360
USS	LT/3*BM2	4	30/90	30/270
USS	BMC	1	90	90
USS	GM1	1	60	60
USS	2*BM	2	30	60
USS	EN3	1	30	30
USS	2*GM	2	30	60
USS	EN2	1	30	30
USS	EM1	1	30	30
USS	DC3	1	30	30
CGRON	DCCS/GMCS/GSMC	3	30	90
DDGRON	UNK	11	90	990
PCU	UNK	10	90	900
PCD	UNK	10	10	100
TPU	UNK	10	90	900
NAVY RESERVE	UNK	26	UNK	511
			Total ManHours	4,030

Source. Created by author.

The type of personnel explains what area they were most likely assigned to assist. The four personnel in the first row consist of one engineer officer, two engineer sailors and one deck sailor. The engineer officer would help in the propulsion, auxiliaries, electrical, damage control, aviation, NAVOSH, ventilation, environmental protection, habitability and preservation. The two enlisted engineers would assist in propulsion, auxiliaries, damage control, aviation, NAVOSH, ventilation, environmental protection and preservation. The deck sailor would help in deck, damage control, operations, navigation, aviation and preservation. Row two consists of another officer and three deck sailors. Row three included a senior deck enlisted. Row four included a weapons enlisted

sailor to help in the weapons area. Row five has more deck enlisted and row six more engineer enlisted. Row seven includes two more weapons enlisted. Row eight through eleven contain more engineers and weapons enlisted. Row twelve through sixteen was unknown, which means they were not necessarily assisting a specific area.

The importance of these assigned areas became clear while comparing the average CG problem areas with CG A's inspection results. The problem areas mentioned earlier are all specifically covered by these personnel that were sent to assist CG A with the INSURV preparation process. The only problem area not addressed was communications. The effectiveness of these personnel can be determined by comparing CG A's score in these areas that had external support. Damage control, deck, auxiliaries, propulsion, operations and NAVOSH all scored higher than the class average. Communications did also, but because no verified personnel were assigned to that area, that result will not be considered. Aviation, ventilation and environmental protection remained below the class average. Preservation scored at the class average.

Out of eleven known CG problem areas, seven surpassed the class average, one scored at the average and three scored below the class average. It is also critical to note that deck and propulsion scores for CG A were .15 greater than the CG class average. CG A's propulsion score was the highest and deck was the second highest score of all CG's tested within this time period. A good portion of the augmentation personnel supported the INSURV preparation process in those two areas.

CG A – CG B Comparison Analysis

The result of CG A's INSURV was effectively compared with the class averages, but to ensure the analysis is complete it is necessary to compare CG A, who utilized

external support during the INSURV preparation process, to CG B. No documentation or data could be found regarding any external support provided to CG B; therefore, for the purposes of this comparison it will be assumed that CG B received minor external support at best.

Table 4. CG B – CG Average Comparison

Scores	CG B	CG Average	Delta
Damage Control	0.75	0.67	0.08
Deck	0.6	0.60	0.00
Auxiliaries	0.72	0.68	0.04
Electrical	0.83	0.82	0.01
Propulsion	0.58	0.71	-0.13
ASW	0.82	0.88	-0.06
Comms	0.57	0.77	-0.20
Information Sys	0.85	0.85	0.00
Navigation	0.84	0.88	-0.04
Operations	0.55	0.73	-0.18
Weapons	0.84	0.84	0.00
Aviation	0.58	0.72	-0.14
NAVOSH	0.75	0.77	-0.02
Ventilation	0.63	0.72	-0.09
Env Protection	0.57	0.70	-0.13
Supply	0.78	0.80	-0.02
Habitability	0.8	0.82	-0.02
Medical		0.88	
Preservation	0.73	0.75	-0.02
Average Score	0.71	0.77	-0.06

Source. Created by author.

To correctly compare CG A's performance to CG B, it is first necessary to compare CG B to the class averages. Table 4 is similar to the table used to compare CG A to the class averages, except that now the data represents CG B's inspection results. It

is important to remember that since CG B had no medical data, the averages are calculated based on eighteen areas vice nineteen. Only three of CG B's areas are above the CG class averages, damage control, auxiliaries and electrical. The high of these three is damage control with a score .08 above the class average. Three more scores are equal to the class averages, deck, information systems and weapons. The other twelve areas are below the class averages with scores between .02 to .18.

Once both ships were compared to the CG class average comparing them to each other became simple. CG A had nine areas of nineteen, 47 percent, below the class average, while CG B scored twelve areas of eighteen, 67 percent, less than the class averages. Though this comparison is simple, it is not complete. Comparisons with an average can be tricky depending on whether the averages falls above or below the INSURV minimum SAT score. In order to analyze the full range, a breakdown of the scores by a factor of ten is needed. SG A had no scores above .50, two scores above .60, ten scores above .70, six scores above .80 and one score above .90. CG B had five scores above .50, two scores above .60, five scores above .70, six scores above .80 and no scores above .90. The total average score of CG A is .78, while the average score of CG B is .71.

It is also important to analyze the starting condition of each ship, since it may affect the end result of the inspection. Comparing the Departure From Specifications (DFS) and Casualty Reports (CASREPs) of both ships was the most effect way to analyze the pre-INSURV condition of both ships. CG A had 25 DFS's active at the start of the INSURV and CG B had 33. See Appendix E. The more DFS's active the worse the condition on the ship. The same principle applies to CASREPs. CG A had 149 CASREPs

by the start of INSURV and CG B had 22. See Appendix E. CG B had more DFS's, but CG A had significantly more CASREPs.

Conclusion

The qualitative and quantitative analysis of the INSURV inspection, preparation process and results provided a sound basis for comparison despite the lack of concrete data regarding external support. The detailed analysis conducted was critical to answering the secondary research questions, which supported the conclusions that will be drawn as well as the recommendations for future data collection processes and studies.

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³Robert Strait, "How To Prepare For INSURV," *Sea and Shore* (Fall 2006), <http://www.safetycenter.navy.mil/media/seashore/issues/fall06/HowToPrepare.htm> (accessed 4 April 2010).

⁴Philip Ewing, "Cruiser Study: InSurv prep means extensive outside help," *Navy Times*, 12 October 2009, <http://infoweb.newsbank.com/iw-search/we/InfoWeb> (accessed 30 November 2009).

⁵Commander Naval Surface Forces "SWE Surface Board: Face to Face," 31 March 2010, <http://f2f.wikispaces.com/file/view/TAB+2+BriefDay1.ppt> (accessed 20 April 2010), 83.

⁶Ibid.

⁷Philip Ewing, "Lean Manning saps Morale, Puts Sailor at Risk," *Navy Times*, 21 October 2009, http://www.navytimes.com/news/2009/10/navy_leanmanning_101909w/ (accessed 04 April 2010).

⁸Otto Kreisher, "Admiral: Fleet Size Hinges On Larger Maintenance Budget," *National Journal's Congress Daily AM*, 13 January 2010, <http://www.nationaljournal.com/congressdaily/> (accessed 20 January 2010).

⁹Margaret Roth, “Navy’s “New World” of Optimal Manning,” *Navy League: Sea Power*, December 2004, http://www.military.com/NewContent/0,13190,NL_Optimal_121304,00.html (accessed 18 March 2010).

¹⁰Philip Ewing, “Lean Manning saps Morale, Puts Sailor at Risk,” *Navy Times*, 21 October 2009, http://www.navytimes.com/news/2009/10/navy_leanmanning_101909w/ (accessed 4 April 2010).

¹¹*Ibid.*

¹²*Ibid.*

¹³Board of Inspection and Survey, INSURVINST 4730.1F *Trials and Inspections on Surface Ships*, (Virginia Beach, VA, 28 February 2008).

¹⁴*Ibid.*, 11.

¹⁵*Ibid.*, 4.

¹⁶Office of the Chief of Naval Operations. OPNAV INSTRUCTION 4730.5P *Trials and Material Inspections (MI) of Ships Conducted by the Board of Inspection and Survey* (Washington, DC, 7 August 2006), 2.

¹⁷*Ibid.*

¹⁸*Ibid.*, 1.

¹⁹Commander Military Sealift Command, COMSC INSTRUCTION 4730.4, *Ship Material Assessment and Readiness testing (SMART) Inspections on MSC Vessels* (Washington, DC, 14 August 2009), 1.

²⁰United States Naval Institute Foundation Blog, “System Coaches and Inflexible Playbooks,” USNI Foundation, October 2009, <http://blog.usni.org/2009/10/08/system-coaches-and-inflexible-playbooks/> (accessed 4 April 2010).

²¹*Ibid.*

²²*Ibid.*, 2.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The following conclusions can be drawn based on the comparison of the qualitative and quantitative data discussed in chapter 4. They begin by focusing on the informal preparation processes of all three services, followed by the inspection purpose and what value it provides to the services. The final judgment will cover the impact of this external support on the inspection results.

The Navy preparation process, leveraging external support, was the only informal process that was discovered during this study. This process, while well-intentioned, can affect the performance during the inspection process. It made sense that it would since it was implemented to correct the Navy's downward trend in inspection results, since 2003.¹ The MSC attempted to implement a similar informal process, but was unsuccessful due to manning requirements. See Appendix D. Was failure to implement this informal process, within the MSC, really a success? One could argue that it was and that perhaps it prevented the MSC from following the Navy's lead, toward a constant downward trend. See Appendix H. Though this idea of providing external support in the form of funding and manpower briefs well to senior leadership, it adversely affects the results of the inspection, giving the impression of sustained readiness, when in fact sustained readiness was never achieved by the ships. It is time to stand fast and let the senior leadership see and hear about the issues. In a time where the reports are classified, the Navy should be striving for transparency. This transparency is necessary not only

because we should, but because we must ensure ships in the future have the capability to maintain readiness and promote self-awareness.

The analysis of the INSURV inspection process confirms that its purpose has not changed. Its purpose is still to ensure naval vessels “are properly equipped for prompt, reliable, sustained mission readiness at sea.”² The analysis of the Navy, MSC and Coast Guard process and supporting documentation confirmed this conclusion. Reviewing the formal and informal preparation processes revealed a similar conclusion. The formal preparation process supports the goals of the inspection and the intent. The informal process; however, did not support the intent of the inspection. Since the intent was to ensure ships were “properly equipped”³, then the use of outside labor, expertise and funding runs contrary to that intent. The impact of this external support will be further discussed below. There was no data or lessons learned on the MSC and Coast Guard preparation processes that would indicate that an informal process, like the Navy’s process, existed.

The data to conduct a similar quantitative analysis on MSC ships was not available, but a thorough review of the SMART process was eye opening. The MSC’s ability to coordinate inspections with civilian maritime organizations and minimize the impact of the inspections on the ship’s operational rotation should serve as an example for the Navy and Coast Guard.

The Coast Guard used the INSURV inspection differently, but the process and intent is the same. Though the data available on the Coast Guard inspections was unavailable, it should be mentioned that they should watch the Navy and MSC processes closely to learn from previous mistakes before they are affected.

The value of an inspection, such as INSURV, provides countless benefits. These benefits in the form of training, knowledge or experience helped to develop our leaders and our subordinates. At the junior level it provided training and knowledge. At the senior level it provided a useful tool to review and report the readiness condition of ships using extremely experienced inspectors. The use of external support impacts this value. The junior levels do not gain as much experience, since outside help does some of their tasks. The same argument can be made for leaders at all levels.

In addition, senior leaders can no longer trust the reports that INSURV provides. This is not because INSURV is performing the inspections differently, but because the ships are pulling in resources to assist with the preparation process. This assist, in the form of the external support has the same effect as falsifying the report. It uses outside sources to augment crews to accomplish tasks that should be completed by crew members.

The extent of external support, as mentioned in chapter 4, is still unclear, but the fact that it does exist, should cause worry. It is one more method of adapting to a problem without identifying and fixing the actual problem. By not identifying manning issues, funding issues or maintenance issues, the crews are perpetuating a cycle of minimal manning and repair funds. This idea validates this study and argues that the external support provided to the Navy ships only, affects the original purpose and value of the INSURV inspection for the Navy. The lack of external support within the MSC and Coast Guard inspection preparation process reaffirms that their processes have not lost their value within recent years.

The lack of data was problematic given the original scope of this study. Though data was found for a comparative analysis, its scope and depth were insufficient for a thorough quantitative analysis. The raw data that is necessary to properly complete this study are not available within the historical reports. This raw data was not available from any one command, nor was it collected for historical value.

In addition to the lack of raw data, it was discovered that individual lessons learned were not readily available, except from INSURV. INSURV's lessons learned only covered critical maintenance important for the inspection. It did not cover the informal preparation process. The MSC does not currently distribute lessons learned, which can perpetuate and breed a lack of training. The lack of consolidated lessons learned from individual ships impacted this study. Lessons learned are relatively easy to draft immediately following an inspection, but they are difficult to generate once significant time has elapsed.

Recommendations

The INSURV Board should learn from the MSC SMART inspection, since it is more efficient and less time-consuming, despite the differences. The idea that systems already inspected are assumed operational is a simple change that could be implemented by the INSURV Board to reduce the load on the Navy personnel, INSURV personnel and stop the redundant nature of some of the inspections. In addition, INSURV should track the external support provided during the preparation process in an attempt to provide a better and more thorough report to senior leadership.

The CLASSRONS who are briefed on this external support and who provided external manning and funding, should also be tracking the external support data. Since

they are responsible for identifying class problems, this data would be extremely useful as a metric for senior and junior leaders alike.

The individual ships are tracking the necessary data to conduct a thorough study of this issue, but as personnel rotate, the data is lost. To maintain continuity the data collection responsibility should be assigned to the CLASSRON and INSURV. A recommendation for the ship would be to refuse external support and see the real results of the INSURV inspection. INSURV had always provided excellent lessons learned throughout the ship. The lessons learned now do not account for the extra experts that come to support the preparation process. One could argue that this point invalidates any lessons learned from the inspection, since those experts will not be on board once the inspection is over.

Based on the limited data available regarding lessons learned and external support, it would be useful for the MSC to push hard to produce lessons learned from the SMART inspections. In addition, collecting funding and manpower data, to support SMART inspections would provide early warning to problems that are brewing within their ships. Another important recommendation is to maintain the open dialogue with INSURV in an attempt to better assist the Navy with their changes and to share lessons learned across the maritime services, which may prevent repeated mistakes.

The lack of data is an area where further research could be conducted. Collecting external support data would provide more quantitative substance to this study, and provide supporting or disputing arguments. In addition, any information obtained on any informal MSC or Coast Guard processes would also provide value to the conclusions of this study.

In summary this study answered all the research questions but one. The relationship between the inspections used by the Navy, MSC and Coast Guard was established and compared. The purpose of these inspections and their value was also established after reviewing the literature. Research provided evidence that external support was used during the preparation for the inspection by the Navy, but not for the MSC or the Coast Guard vessels. Analyzing the impact of this external support, consisting of funding and manpower, clarified the effects on the results of the inspections. An examination of the extent of this external support was not supported by the available data and therefore could not be answered in a comprehensive manner.

Further research needs to be conducted to correctly identify the scope of the external support to Navy ships and the implications on cost benefits. The data collected for this study was limited to the two ships, but a study that included data from across the Coast Guard and MSC would prove very useful in determining the scope of this external support. It would provide solid data and precise recommendations that would be useful to senior leadership. To accomplish this study, a point of contact for the Coast Guard must be established and data must be obtained from the MSC.

In addition, a study conducted on the cost benefit implications on external support would also provide senior leadership an interesting data base. Since maintenance and repairs scheduled at the last minute are exponentially more expensive, it would seem logical that the last minute work conducted prior to the INSURV inspections might be a waste of critical and limited funds. This is an important area which is open to further research and will provide senior leadership another argument to avoid external support during INSURV preparations.

It is clear that external support during the preparation for these inspections does affect the results and therefore decreases the value of INSURV inspections. This fact must be taken into account by senior Navy leadership in order to preserve the intent and value of the Navy's INSURV inspection. In addition, the other services should be aware of this important finding, ensuring that all material inspections retain the value and intent as specified by the governing documentation.

¹Commander Naval Surface Forces, "INSURV Inspection Results," January 2010, Email from LCDR Edward J. Schweighardt, Naval Surface Forces Atlantic, N037 Shop, 20 January 2010.

²Department of the Navy, About Us, "Mission," <http://www.public.navy.mil/usff/insurv/Pages/default.aspx> (accessed 25 September 2009).

³Ibid.

GLOSSARY

American Bureau of Shipping. American Bureau of Shipping is a company which sets the standards for ship building and classing. The mission of the American Bureau of Shipping is to serve the public interest as well as the needs of our clients by promoting the security of life, property and the natural environment primarily through the development and verification of standards for the design, construction and operational maintenance of marine-related facilities.

Anti-Submarine Warfare. ASW. Area inspected during INSURV. This area covers the repair and operation of all systems associated with finding and hunting submarines. It also includes the training and manning of the technicians and operators of these systems.

Auxiliaries. Area inspected during INSURV. This area covers the operation, and maintenance of all auxiliary machinery. This machinery refers to all equipment that is not used for the ship's propulsion. It also includes the training of all technicians and watch team to repair and operate this equipment.

Auxiliary Machinery Systems. Area inspected during SMART inspection. This area covers the operation, and maintenance of all auxiliary machinery. This machinery refers to all equipment that is not used for the ship's propulsion. It also includes the training of all technicians and watch team to repair and operate this equipment.

Aviation. Area inspected during INSURV and SMART inspections. This area covers the operations and scheduling of all aviation missions on a ship. It also includes the training and manning of the personnel required to land, refuel and sustain aviation operations.

Class Squadron. CLASSRON. A command established to track and identify Navy ship class issues. They recently have been responsible for assisting and tracking INSURVs. There are 5 CLASSRONs: CG CLASSRON (cruisers), DDG CLASSRON (destroyers), FFG CLASSRON (frigates and minesweepers), LHA/LHD CLASSRON (large deck amphibious ships), and LPD CLASSRON (small deck amphibious ships).

Communications. Area inspected during INSURV. This area covers the repair and operation of all communication systems on a ship. It also includes the training and manning of the technicians and operators of these systems.

Computer LAN systems. Area inspected during SMART inspection. This area covers the repair and operation of all communication systems on a ship. It also includes the training and manning of the technicians and operators of these systems.

- Damage Control. Area inspected during INSURV and SMART inspections. This area covers all fire fighting equipment and fire safety equipment, both installed and portable. It also includes equipment, manning and training requirements for the fire fighting teams.
- Deck. Area inspected during INSURV. This area covers the operations completed outside the ship, primarily boat operations, underway refueling, stores transfers, flight operations, anchoring, search and rescue, and low visibility details.
- Electrical. Area inspected during INSURV. This area covers the repair and operation of the 60 hertz electrical system. It also includes the training and manning of the technicians and watch teams to repair and operate this system. In addition, it covers the electrical safety program for the entire ship.
- Electrical Power Generation and Distribution. Area inspected during SMART inspection. This area covers the repair and operation of the electrical system. It also includes the training and manning of the technicians and watch teams to repair and operate this system. In addition, it covers the electrical safety program for the entire ship.
- Electronics and Navigation. Area inspected during SMART inspection. This area covers the repair and operation of all systems required to navigate and communicate on and off the ship. It also includes the training and manning of the technicians and operators of these systems.
- Environmental Protection. Area inspected during INSURV and SMART inspections. This area covers the safety, training and operation of all equipment and programs required to protect the environment. This area primarily covers the disposal of trash (general, metal and plastic), oil and fuel, and ensures that the proper environmental restrictions are followed.
- Habitability. Area inspected during INSURV. This area covers the living spaces and the spaces that provide comforts to the crew. This area covers the design, maintenance and operation of these spaces.
- Information Systems. Area inspected during INSURV. This area covers the repair and operation of all network systems on a ship. It also includes the training and manning of the technicians and operators of these systems.
- ISIC. Immediate Superior in Charge. This is a ship's immediate superior. They are responsible for tracking and ensuring administrative tasks are completed by individual ships under their responsibility. It is usually composed of a commander and staff. Throughout this study ISIC will refer to the commander.
- Main Propulsion. Area inspected during SMART inspection. This area covers the repair and operation of all systems associated with the propulsion to include engines and bearings. It also includes the training and manning of the technicians and

operators to repair and operate these systems. In addition, it covers the fuel and lube oil programs onboard the ship.

Medical. Area inspected during INSURV and SMART inspections. This area covers the health facilities on the ships. This area also covers the programs run by the medical personnel, such as immunizations, medication inventory and water quality testing.

Naval Occupational Safety and Health. Area inspected during INSURV. This area covers the safety and training required to maintain safe working environment on a ship. The primary areas specifically evaluated are hearing conservation, heat stress, water quality, eye protection, hazardous material storage and classification, electric and electronic safety, respirator safety, and general ship safety. It also includes the training and manning of the personnel required to supervise and evaluate these programs routinely.

Navigation. Area inspected during INSURV. This area covers the repair and operation of all systems on a ship required to navigate. It also includes the training and manning of the technicians and operators of these systems.

Occupational Safety and Health. Area inspected during SMART inspection. This area covers the safety and training required to maintain safe working environment on a ship. The primary areas specifically evaluated are hearing conservation, heat stress, eye protection, hazardous material storage and classification, electric and electronic safety, respirator safety, and general ship safety. It also includes the training and manning of the personnel required to supervise and evaluate these programs routinely.

Operations. Area inspected during INSURV. This area covers the operation and scheduling of all missions on a ship. It also includes the training and manning of the operators required to accomplish these missions.

Optimal Manning Initiative. Initiative initiated in 2004, which reduced the manning requirements for all classes of ships in an attempt to reduce the budget. This initiative was based on upgrading equipment to minimize manpower requirements.

Outfitting and Furnishings. Area inspected during SMART inspection. This area covers all the equipment and gear that is required to be on board and operational to conduct daily tasks. Examples of gear covered in this area are living space items and deck equipment not included in the auxiliary machinery systems.

Pre-commissioning inspection. Inspection conducted on newly built ships. It is conducted by INSURV and is the government's acceptance of a newly built ship.

Preservation. Area inspected during INSURV. This area covers the overall appearance and maintenance of the hull, walls, ceilings and floors of a ship. This area

- primarily focuses on the identification of corrosion or damage throughout the entire ship.
- Propulsion.** Area inspected during INSURV. This area covers the repair and operation of all systems associated with the propulsion to include engines and shafting. It also includes the training and manning of the technicians and operators to repair and operate these systems. In addition, it covers the fuel and lube oil programs onboard the ship.
- Shipboard Management Team.** It is a team onboard Military Sealift Command ships which consists of the Master, Chief Engineer and Port Engineer. This team is responsible for the preparations and execution of the SMART inspections onboard Military Sealift Command ships.
- Ship Material Assessment and Readiness Testing.** This inspection is the version of the INSURV inspection conducted on Military Sealift Command ships. The commander of the Military Sealift Command was delegated the responsibility for conducting the INSURV inspection and designed the Ship Material Assessment and Readiness Testing for the ships he/she is responsible for.
- Structural.** Area inspected during SMART inspection. This area covers the overall appearance and maintenance of the hull, walls, ceilings and floors of a ship. This area primarily focuses on the identification of corrosion or damage throughout the entire ship.
- Supply.** Area inspected during INSURV. This area covers the operations, scheduling and preparation of parts, material and food. This area covers the on board storage, to include the purchasing and usage of parts. It covers the purchasing of general material and food.
- Supply and Food Service.** Area inspected during SMART inspection. This area covers the operations, scheduling and preparation of parts, material and food. This area covers the on board storage, to include the purchasing and usage of parts. It covers the purchasing of general material and food.
- Underway.** To be at sea onboard a vessel, a naval term, used as a verb.
- Ventilation.** Area inspected during INSURV. Area inspected during INSURV. This area covers the safety and training required to maintain safe air flow throughout the ship. This area covers all spaces on board a ship, but primarily focuses on living spaces, food preparation spaces, hazardous material storage spaces and engineering spaces.
- Weapons.** Area inspected during INSURV. This area covers the operation and scheduling of all engagements on a ship, excluding the engagement against submarines. It also includes the training and manning of the operators and technicians of these weapon systems.

APPENDIX A

INSURV INSPECTION SCHEDULE

INSURVINST 4730.1F

28 Feb 08

INSPECTION SCHEDULE

1. General.

a. A Material Inspection is normally conducted in phases.

These phases are:

(1) Underway

(2) Post-Underway

(3) Out-brief

b. Normally a Material Inspection should be limited to five days.

The Board's arrival time and/or the size or type of ship being inspected may necessitate varying this period slightly.

2. Inspection Schedule.

a. General

(1) A proposed schedule of events (SOE) for conduct of the Material Inspection should be provided to the INSURV Board for review and approval at least 30 days in advance. Liaison with the INSURV Recorder should be conducted prior to submission of this proposed schedule. Sufficient copies of the approved schedule should be prepared and furnished to all INSURV members and interested parties upon their arrival.

(2) The SOE shall include demonstrations of all onboard propulsion, hull, electrical, auxiliary, and C5I equipment. Mutually compatible demonstrations may be scheduled simultaneously.

(3) It should be understood that the SOE represents only a fundamental set of demonstrations. Additional tests and demonstrations may be requested by INSURV to pinpoint deficiencies when unsatisfactory or marginal performance is observed. In addition to performance demonstrations, all equipment will be examined to determine if it is installed in a manner permitting its operation for its intended purpose, can be reasonably accessed for required preventative and corrective maintenance, and provides adequate safety protection to the operator.

b. Pre-underway Phase. INSURV will commence Material Inspections with a short preliminary conference for the purpose of

28 Feb 08

meeting counterparts and checking documents provided at arrival. Upon completion of this conference, the ship is free to get underway at the Commanding Officer's discretion.

c. Underway Phase. This phase will consist of operational demonstrations of ship's equipment and systems.

(1) When possible, the at-sea portion of the inspection should be completed by the afternoon of day 2.

(2) Details of demonstrations and checks to be conducted during the at-sea portion of the Material Inspection are contained in the departmental appendices.

d. Post-Underway Phase. Detailed inspections and tests of all systems and equipment will start no later than 0800 on Wednesday morning (or earlier as allowed by SOE) for Material Inspections. The majority of civilian and uniform Technical Experts will arrive and commence material checks in accordance with respective departmental appendices below. Additional information can be found on the INSURV Web Site www.spawar.navy.mil/fleet/insurv/. INSURV members may also designate equipment to be opened or disassembled for the postunderway examination. Equipment will be chosen based upon observations during the underway portion and material checks conducted during the Material Inspection, recommendations of the responsible authority, equipment that has been targeted as suspect due to machinery condition analysis or other tests, as well as PMS required scheduled openings. Equipment operating within established technical parameters will not normally be opened with the exception of filters, strainers, and sump inspection covers. It is not the intent of the INSURV inspection to disable a ship, but rather to accurately ascertain equipment conditions. All bilges, particularly in the area of main propulsion machinery and boiler foundations, should be clean and dry to facilitate a thorough inspection of foundations and vital structural members.

Should a situation arise whereby it is impossible for INSURV to conduct this phase of the examination, local agencies will be designated to complete the inspection and report findings to INSURV.

APPENDIX B

SMART INSPECTION SCHEDULE

Typical SMART Inspection Schedule	
Day 1	In Briefs: Kick off meetings for ship's crew and inspectors
Day 1 and 2	Assessments: Pre-Underway inspections. Other non-critical inspection areas are also accomplished simultaneously.
Day 3	Underway day: 1 day underway assessment of ship systems and equipment to demonstrate readiness and mission capability.
Day 4	Open & Inspect/Wrap-up: Inspection of filters, strainers and, in special cases, opening of equipment to investigate equipment failures or suspected problems. Wrap-up of inspections and inspector out-briefs to MSC SMART Team Leaders and SMART Team Senior Naval Inspector.
Day 5	Ship Outbrief: Outbrief ship's senior crew on findings and content of material inspection message.

Source: Created by author.

APPENDIX C

PB11 ISSUE PAPER

Question:

- What is the status of improving results on INSURV inspections?

Response:

- Improvement initiatives for overall INSURV performance include:
 - An additional I-180 Flag level TYCOM (both CNSL and CNSF/P) In Progress Review (IPR) to prioritize support for successful preparation, planning, and execution.
 - Increased preparation oversight from ISICs and direct support for system expertise from TYCOM staffs, Regional Maintenance Centers, other ships and CLASSRONs.
 - Increased training for PCOs at SOSMRC (implemented in Jan 2010) and more Division Officer courses.
 - Improved scheduling flexibility to minimize operational and training impacts on INSURV success.
- Other ongoing improvements to Material Readiness/INSURV performance include:
 - Extensive emphasis on Back-to-Basics, self assessment, and 3M performance.
 - Capturing the complete maintenance requirement by establishing the Surface Ship Life Cycle Management Activity (SSLCMA), conducting the NAVSEA Hull Life Survey being executed by ABS, and including the growing amount of ship-force work (TA-4) into POM-12.
 - Implementation of BAWP-AWP process which will improve the execution of maintenance to better balance repair requirements and life cycle maintenance.
 - Increased priority of CMAV scheduling.
 - Increased length of CNO Availabilities to capture required man-days.
 - Engineering manpower improvements such as: LSD Engineering CHENG and MPA billets improved expertise, restored 16 LSD EN billets (12 ENC, 4 EN1); and increased a total of 35 MM billets on LHD (5 MMFN for 7 LHDs).

Challenge(s)/Problem Area(s):

- Surface ship readiness is resourced to a C2 level and the INSURV material inspection is a C1 standard.

Background:

- In 2003, INSURV process changed to not include a termination status during UMI.
- Annual failure rates from inspections from 1995 to 2002 vary from zero to 12% without a consistent overall trend.
- INSURV failure rates since 2003 for Surface Ships (all ships less CVNs) are:
 - 2003: 10.71% (3 of 28)
 - 2004: 3.23% (1 of 31)
 - 2005: 23.81% (5 of 21)
 - 2006: 11.11% (3 of 27)
 - 2007: 9.09% (3 of 33)
 - 2008: 8.82% (3 of 34)

APPENDIX D

MSC POC EMAIL

LCDR Davis,

The below is some of the information requested which was provided by CDR Fullerton of the N751 SMART team. Please review and if you have any questions or need additional clarification, please do not hesitate to contact the gentlemen noted below.

1. Yes: We do keep a record of previous inspections and places in individual ships history and as a turnover item for incoming military personnel.
2. Not to my knowledge, the port engineers might get a small plus-up but all in all it comes out of the budget.
3. No: ships force only. USS started a program of taking extra sailors and throwing them at the ships for preps until we ran out of folks.
4. When Bill and I read the SMART instruction we discovered there is a requirement to compile and distribute Lessons Learned. We have started doing that first by visiting the ship if possible about a month out and by scheduling a LL conf with PE/Ship mgmt tem in Sept (Same time as INSURV STANCO).

Al,

Thanks for the assist.

Regards,

Steve

From: Davis, Marc E LCDR MIL Navy [mailto:marc.davis4@us.army.mil] Sent: Thu 3/18/2010 12:31 PM
To: Frazier, Steven Civ, MSC N75 Ship Inspection Branch
Subject: RE: Use of Inspection and Survey (INSURV) Board in the Military Sealift Command

Steve,

I am the LCDR who you contacted in Dec regarding my thesis on INSURV and the SMART inspection. After reviewing the SMART information and researching my topic further I have some additional questions that I was hoping you could answer.

1. Do you maintain records of the ship scores/data? Is it possible to receive copies of this data? I understand the classification issue. INSURV agreed that as long as the names of the ships were removed their would be no problem. I do have a SIPR email if necessary.

2. Does someone assign extra funding to the ship to help with the preparation of the SMART inspection? Extra funding I am referring to is for maintenance and repair only.
3. Are any extra personnel assigned to the ship to help during the preparation process?
4. Do you establish Lessons Learned from previous inspections? Is it possible to receive copies of these Lessons learned? I realize these questions may not make sense, but these are questions caused by research the preparation conducted onboard US Navy warships and I was hoping to get a comparison. Thank you for your time and feel free to call if you have any issues.

v/r,
LCDR Marc Davis
U.S. Army Command and General Staff College

APPENDIX E

PRE-INSPECTION CHART (CG A AND B)

Pre-Inspection Chart		
Ext Funds	\$1,360,680	None
Ext Manpower	4,030	None
CSMP Jobs		None
DFS	25	33
CASREPs	149	22

Source: Created by author.

APPENDIX F
LIST OF INSURV CHECKSHEETS

Environmental Protection

Ventilation

Medical

Naval Occupational Safety and Health

Supply

Habitability

Laundry

Main Propulsion

Auxiliaries

Electrical

Aviation

Damage Control

Deck

APPENDIX G

GREATER INSPECTIONS FOR SURFACE SHIPS EMAIL

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Greater Inspections for Surface Ships

The pilot ships included the amphibious dock landing ship Germantown (LSD-42). The Navy has partnered with the American Bureau of Shipping to help ensure its entire fleet of surface ships are able to last until the end of their service lives, Vice Adm. Kevin McCoy, the head of Naval Sea Systems Command, said last week. The inspections conducted in conjunction with ABS began last year with four pilot ships of four different classes, McCoy told reporters Jan. 12 at a press briefing for the Surface Navy Association's annual symposium in Arlington, VA.

"It's essentially the 'Good Housekeeping Seal of Approval,'" McCoy said of the ABS certification for Navy ships.

"You have a registration for your car, but every year you need an inspection to make sure everything is working as it should."

The pilot ships were the amphibious dock landing ship Germantown (LSD-42), the guided-missile destroyer Cole (DDG-67), the frigate Underwood (FFG-36) and the guided-missile cruiser Mobile Bay (CG-53). "When the ships were in dry dock we actually did thousands of ultrasonic inspections -- hull plating, main structural member plating, piping wall thickness," the NAVSEA commander said. "The systems that run stem-to-stern that you're not going to be able to change out in a mid-life availability. We didn't look at things like combat systems because those are changeable during a ship's life. We just looked at those things that will define whether that sea frame can make it to the end."

The inspections found 13 items that needed to be addressed on the Germantown, the three-star admiral said by way of example.

The goal is make sure the Navy has the "surface maintenance piece right," McCoy said.

"We know how to get our submarines and aircraft carriers to their service lives," he added. "We really need to make a few adjustments" to the maintenance plan for surface ships.

This year the Navy will expand the joint ABS inspections to all 10 ships that are scheduled to enter drydock maintenance periods.

"This year we're moving into the mainstream," McCoy noted. "In fact we're doing every surface ship that's going to be drydocked this year."

The Navy will spend about \$5 million to conduct the inspections. Eventually, McCoy said he hopes to be able to do the tests for about \$50,000 per ship, but the first inspections for each class require the building of a "finite element model," a computer model of the ship and all its supporting structure.

Further, NAVSEA wants to figure out how to do these assessments for all surface ships in the next five to eight years.

"The bottom line is to treat our surface ships with great fidelity in terms of analytics in their condition and understanding where they are in their surface life continuum and where we should spend our scarce resources to get them to end of life," McCoy said.

The objective is to "build in predictability, build in the right maintenance at the right time," he added.

"We look at things like pumps and valves, we look at degradation on the hull," McCoy said. "That's a piece that we have not really had well-connected on surface ships in the last 10 or 15 years."

Funds will be programmed in the Navy's program objective memorandum (POM) for fiscal year 2012. "We're working through this right now as part of the POM build-up," the admiral said. "I have told Navy leadership there will be a near-term plus-up. The good news is this near-term plus-up will ensure minimum surprises down the road.

We think this is smart money up front that will pay off not only in total ownership costs, but also in avoidance of surprises that could come before deployments."

McCoy said the long-term maintenance effort is not as concerned with individual ships that fail to pass certain portions of the annual Navy Board of Inspection and Survey (INSURV) reviews.

"We will deal with individual ships as they come up, but this is really a long term focus," he said. "Across the force there's a greater awareness of material condition. One of the things we're trying to do is get out of that nearterm mentality. If we take all our effort and put it on the next deployment, then who is looking out for the [chief of naval operations'] interest in the next 10 or 15 years?"

"Clearly, we have to get ships underway but we have to be mindful of the maintenance continuum so that we don't build a bathtub and say at 25 years there's no way we get another 10 years out of this DDG-51," McCoy added.

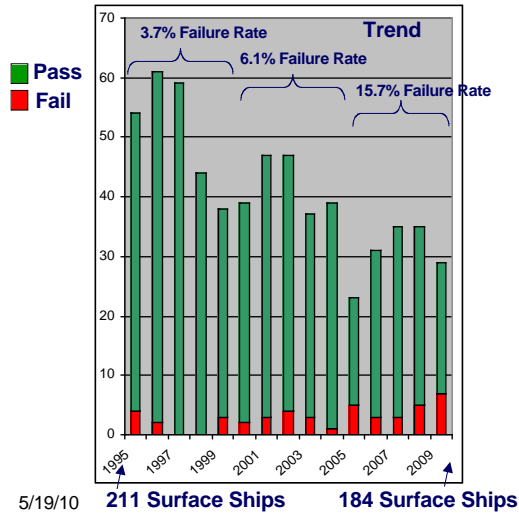
Classification: UNCLASSIFIED
Caveats: NONE

APPENDIX H

NAVAL SURFACE FORCES PRESENTATION



INSURV GUNSAT Inspections (Calendar Year data through 01 December 2009)



INSURV failure trend is on the rise.

Since 2004 (24 failures of 192 MI):

- ¥ ARS Ğ1
- ¥ CG Ğ3
- ¥ DDG - 3
- ¥ FFG - 3
- ¥ LHA Ğ1
- ¥ LHD Ğ1
- ¥ LSD Ğ4
- ¥ MCM - 7
- ¥ PC - 1

Source: Commander Naval Surface Forces, "INSURV Inspection Results," January 2010, Email to author from LCDR Edward J. Schweighardt, Naval Surface Forces Atlantic, N037 Shop, 20 January 2010.

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